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Editorial Notes

The Budget

WHATEVER the feelings of the private individual may be, there can be little doubt that from the point of view of industry the Budget might have been far worse. The increased rate of income-tax will, of course, be paid in the first instance by gas companies or undertakings, but the payment will be recovered from the shareholder or lenders upon whom will fall the ultimate loss. It would have been otherwise if the Chancellor had proposed to bring statutory undertakers within the scope of the National Defence Contribution which falls solely upon the non-statutory industrial organization and could only be recouped by the lowering of dividends or by an increase in the commodity price.

As against the rise in income-tax, the annual wear and tear depreciation rates are increased by 10%, and this, together with the increase granted in 1932, will amount to a concession of 20% above the rates agreed under the Gas Companies Depreciation Agreement in 1912. The increase in the wear and tear allowances is a reasonable concession to industry, and will be particularly appreciated by gas companies which are still working on the basic rates fixed in 1912. Since that date vast changes have been made in the types of gas appliances supplied to consumers. The life of the enamel cooker and other modern appliances differs greatly from the old black apparatus which was in use before the war, and it is necessary for companies to be prepared to adapt themselves to the constantly changing fashions which attract the housewife. It frequently happens that companies find themselves with appliances upon their hands which, although by no means at the end of their effective life, no longer appeal to the æsthetic taste of the consumer. The question arises as to whether the allowances, even with the 20% addition, are sufficient to meet modern conditions and to ensure that the capital expended shall be written down during their effective life. This is a matter which will, no doubt, be the subject of further discussions with the Revenue.

Another aspect of the Budget which has received wide public notice is the increase in the duty on petrol and oil. As users of motor vehicles the Industry will obviously suffer with other industrial and private motor users. It is, however, worthy of note that the tax will not be applicable to benzole, and the advantage of eightpence previously enjoyed by benzole will be increased to ninepence. Further, no corresponding tax has been imposed upon the Railway Companies. The Gas Industry relies to-day—and as far as can be anticipated will rely in the future—upon rail rather than road transport. The railways must necessarily tend to look for their main revenue to the heavy traffic which cannot leave the rails, and the prosperity of the Railway Companies is bound to be reflected in the rates on coal. Any encouragement given to the Railway Companies cannot, therefore, be inimical to the Gas Industry.

The most serious aspect of the Budget proposals is the diminution of the purchasing power of the community. To income-tax payers the higher rate of tax will naturally tend towards domestic retrenchment, which might not be without its effect upon both the sale of gas and the purchase of gas appliances—particularly those of the luxury types such as central heating. The increased tea tax—even discounting slightly the effect which party politics attribute to it—together with the rising trend in living costs may react somewhat on gas consumption.

There is no doubt, however, that the Industry will look at the Budget proposals as a whole and will, as in the past, be willing to shoulder its fair share of the burden of national expenditure. In the present state of world affairs no sane man would desire to leave his country unarmed, and equally any suggestion of cuts in the social services makes no wide appeal. Taking the long view, it could hardly be disputed that the Budget might have been far more oppressive to industry than in fact it is.

Standardization

WE think it will be generally agreed that the specifications which have been issued by the British Standards Institution as the result of collaboration of all sections of the Gas Industry, including, of course, the manufacturers of plant and appliances, have been extremely helpful in themselves and helpful also in bringing together in common conference the various interests within the Industry. The specifications have been modified from time to time, for they are always open to revision. It has been recognized that standardization must not be allowed either to retard invention or eliminate individuality. This, we know, is uppermost in the minds of those who are to such good purpose fostering co-operation. In the long run the manufacturer benefits from the standardization of certain component parts of apparatus, which, without affecting the individuality of his goods, not only reduces his manufacturing costs but relieves gas undertakings from unnecessarily high maintenance charges. It reduces, too, the

carrying of large stocks because of a multiplicity of design in non-essential factors.

Discussing water heaters in a Paper before the Yorkshire Junior Gas Association, Mr. Murray, of the Sheffield Gas Company, said that, in view of the number of different makes of heater at present on the market, the question of standardization immediately springs to mind. But, he added, any standardization "would lead to a certain arresting of progress and place limitations on the ingenuity of designers." There is, however, plenty of room for the type of standardization to which we have referred, for specifications intended to serve as a guide to both manufacturer and buyer, so that new appliances may at least conform to existing standards of performance, for standards which indicate that the appliance will be safe to use under ordinary service conditions and that its technical performance will not fall below a defined minimum. The specifications issued are neither too low in standard to be of value nor too rigid to permit of further development.

Then there is standardization in methods of manufacture to consider. The Gas Industry asks the manufacturer of appliances for quality goods at a cost as low as possible, yet, even to-day, gas undertakings demand deviations from standard models which may be dictated by personal whim but which are not essential. Too many undertakings have individual specifications—not necessarily entire specifications, but specifications dealing with some special features to be incorporated in the appliances they buy. Naturally this has a bearing on costs. As we have already mentioned in these columns, this matter was referred to by Mr. H. J. Yates in his speech last March to the shareholders of Radiation Limited. He emphasized that the only way to manufacture economically is to standardize and to produce in large quantities. Even a slight deviation from the standard article puts up costs out of all proportion.

Reverting to the Paper by Mr. Murray, we are glad that the Author pointed to the need for uniform methods of tests for gas water heaters. We have had a good deal to say on the desirability of agreed schedules of test, in the absence of which comparison of the results of tests made by different undertakings under different conditions cannot be properly made. Rationalization of gas undertakings, group working, is in this direction having a good effect; and we mentioned in these columns only a fortnight ago the co-operation which has been established, through the Newcastle Gas Company, of the Northern Development Centre, which now represents both industrial and domestic appliance work, with the Gas Light and Coke Company's activities at Watson House. This has resulted in agreement on methods of testing. Mr. Murray calls for British Standard codes for the testing of gas water heaters of the instantaneous and storage and circulator types. Already there is in preparation a B.S.I. specification for the testing of gas cookers, and there would seem to be no difficulty in arriving at a specification covering gas water heaters.

Holding Company Results

If it be agreed—and we think it must be agreed—that the future success and prosperity of the Gas Industry in face of competition, which ever grows keener, must rest on the giving of first-class service by undertakings, large and small alike, then one can only regard with satisfaction the results to date of the United Kingdom Gas Corporation as outlined by the Chairman, Mr. R. B. H. Ottley, in his speech at the annual meeting of the Corporation last week. Whatever views may be held on the holding company movement, all who have studied our report of the speech in the "JOURNAL" will admit that within a very short time the Corporation has accomplished a very great deal in raising the standard of service afforded by its constituent undertakings, that the foundation work has been tackled with a will, and that results have been gained which would have been impossible of achievement in the absence of co-ordination, group working, and central organization.

Mr. Ottley's speech was an encouraging story, and he made it clear that the success of the Corporation—the past year showed an increase in gas sales of 4%—will always be conditional upon the satisfaction given to consumers by the undertakings it controls. He emphasized, too, that one of the main objectives is physical amalgamation wherever geographical considerations admit. Much has been done in this direction. Mr. Ottley indicated some of the work carried out by the Corporation during its short existence to consolidate the gas business. Inevitably it has involved heavy expenditure, but we feel sure it will be justified in the result, for the gas consumer of to-day will not pay for an inferior "take it or leave it" service; he has alternatives at hand. Works plant has been brought up to date, storage capacity where needed has been amplified, mains extension schemes have been undertaken, and new showrooms have been erected. The details given by Mr. Ottley showed how thoroughly the foundations of good service are being laid. Special campaigns have been inaugurated for the selling of appliances. These are centrally organized and are worked in collaboration with and under the guidance of the local managers. The companies have been divided into groups, and Mr. Ottley mentioned that in the first group which has been tackled the turnover in sales of appliances has been quadrupled. These sales, he maintained, could never have been made by the individual efforts of the undertakings concerned, which could not have provided the personnel, publicity, and organization necessary for their attainment.

As persistent advocates of the adoption of sales promotional tariffs for gas we welcome Mr. Ottley's announcement that the Corporation intends to introduce such tariffs throughout the constituent undertakings, in the confidence that in this way competition not only from electricity but from other fuels can be met effectively and the consumption per consumer increased. And, as one who has done so much in the direction of attractive tariffs, and who has proved conclusively their value—indeed, necessity—it was natural that in his remarks following the Chairman's speech Colonel W. M. Carr should refer to this important aspect of the Corporation's policy. Colonel Carr also stressed the point that while much can be achieved by organizing co-ordinated effort the ultimate success of any particular undertaking is dependent upon its chief official and his staff. He spoke of the Corporation's desire to strengthen the position of the officials of individual undertakings in order, by co-operation, to obtain the maximum benefit from the centralized efforts. Another very important phase of the Corporation's activities mentioned by both Mr. Ottley and Colonel Carr was that concerned with the public lighting load. The Corporation has been successful in assisting its companies in securing many contracts for street lighting over long periods of years. In two of the schemes undertaken electricity was displaced by gas, ten-year contracts being secured; and in one of these cases electricity had held the field for twenty years. The schemes could not have been tackled had the gas undertakings concerned been working individually.

Then it will be seen from our report in to-day's "JOURNAL" that the South-Western Gas and Water Corporation shows an

increase in gas sales for the year of 4%, a similar figure to that of the United Kingdom Gas Corporation. These two companies are now very closely interlinked. Mr. S. J. Ingram retired from the Chairmanship of the Company, as already noted in the "JOURNAL," at the beginning of the year, and Mr. Ottley was elected to the position; the United Kingdom Corporation is now responsible for the management of the constituent companies of the South-Western Corporation. Thus the latter can draw upon the engineering, technical, sales, and publicity organization of its larger brother, and it has the advantages of the central laboratory and drawing office. With the assistance of the industrial experts of the U.K. Corporation the South-Western is busily tackling the problem of expansion of sales for industrial purposes, and in his speech last Thursday Mr. Ottley was able to announce that, in common with the U.K. Corporation, the South-Western had more than held its own in the field of street lighting. Again Mr. Ottley's speech was a story of much accomplished in raising the standard of gas service, in consolidating the gas business.

The W.G.C.

EVEN the most sanguine among those responsible for the formation of the Women's Gas Council in 1934 could hardly have visualized the progress which was to be made during the first three years of its existence. It was revealed at the third Annual General Meeting, held last week at Gas Industry House and referred to elsewhere in this issue of the "JOURNAL," that the total membership at March 31 last was not far short of the ten thousand mark; indeed, including affiliated organizations and new branches formed since the preparation of the annual report, it may safely be assumed that this figure has already been surpassed. The meeting was once again honoured by the chairmanship of the Dowager Lady Nunburnholme, J.P., whose capable handling of the business on the agenda provided an example of which many of our mere male organizations might well take note, and allowed ample time for a very informative address by the Countess of Limerick on the part which women can play in public life.

It is difficult to over-emphasize the power for good which these membership figures represent; the existence of branches throughout the country exerts an admirable influence among the Industry's principal consumers and stimulates a feeling favourable to gas and gas usage in the home. An important feature of the work of the W.G.C. is, in addition, its useful contacts with many organizations predominant in the work which women are doing in increasing measure in the public life of the community. Such links as these help to bring the activities of the Gas Industry into even greater prominence and foster an appreciation of the important part it is playing in the life of the people.

Valuable work is also being done by the Council in the training of demonstrators and in educational matters generally. As a result of enquiries received from domestic science colleges wishing to include the approved W.G.C. course in their curricula, a training sub-committee has been formed, while members of the headquarters staff have continued to give talks to various organizations, and a panel of lecturers is at the disposal of branch secretaries. The London and Home Counties Demonstrators' Circle now has a membership of 135, while the summer school for demonstrators has also proved extremely beneficial. The Council was represented on the Council of the Domestic Services Exhibition last January, and, as has already been announced, they have a stand in the Cultural Section of the Pavilion of the Women of the Empire at the Empire Exhibition at Glasgow. An official visit of members from many branches is planned for June 22.

No review of the activities of the W.G.C. would be complete without a tribute to the officers and executive committee for their splendid work. With the Marchioness of Londonderry as President and many other names which are household words in the world of public and social service on the list of vice-presidents, it is clear that the Council's efforts have already induced, among those well qualified to judge, recognition of the usefulness of the work being done. The number present at the General Meeting, moreover, points to the fact that membership is something of which housewives may be proud, and we would commend the activities of the organization to those undertakings which have not yet sponsored the formation of a local branch. There can be no better means of establishing an interested and contented body of consumers than to band them together into an organization which not only keeps them *au fait* with the Gas Industry from the practical standpoint, but also gives them the opportunity of participation in the activities of a body which is associated with work of benefit to the whole community.

Gas from Fuel Oil

In a Paper to the Institute of Fuel Mr. G. M. Gill and Mr. L. B. Jones discussed the production of town gas from fuel oil. The gas made from fuel oil, they stated, is to all intents and purposes coal gas made from oil. "Not merely similar but practically identical in composition and characteristics; it is, in fact, indistinguishable from coal gas." Town gas as generally supplied in Great Britain, however, is not coal gas but a mixture of coal gas and water gas, the latter produced either by steaming or in a separate water gas plant. "Most gas engineers," stated the Authors, "are quite familiar with the economic advantages of low cost auxiliary plant to relieve their coal gas plant of seasonal peaks, but few have had any appreciation of the fact that oil gas apparatus offers auxiliary plant for peak loads that will exactly duplicate coal gas and has the maximum of flexibility and investment economy."

It will be noted particularly that the Authors' comparison throughout is between coal gas and oil gas, not town gas and oil gas. They maintained that "production expense for oil gas at present prices in the London area is 30% more than the production expense for coal gas at 100% load factor, but the capital cost of complete oil-gas plant is only slightly more than half the cost of coal-gas plant, making the holder cost per therm of oil gas less than a halfpenny more than coal gas at 100% load factor. The advantage of coal gas maintains with a decreasing differential at lower load factors until at 50% the coal gas shows only 1% lower holder cost, and at 10% oil gas is 27% cheaper than coal gas, because capital cost represents only one-eighth of the total cost of oil gas at 100% load factor, one-quarter of the total at 40%, and only slightly more than half the total cost at 10% load factor." Maintaining, too, that 40% of coal gas plant is operated at an average of less than 10% load factor, they pointed to the potential economy of employing low cost plant for peak loads.

Oil Gas as Standby

Then Mr. Gill and Mr. Jones suggested that oil gas must be of particular interest to those gas undertakings that already have, or may in the near future arrange to take, a supply of coke oven gas. As emergency stand-by plant oil gas apparatus of even lower capital cost than for peak load plant could, they said, be employed; and "if at some future date stand-by plant may be required to deal with peak-load service, very low capital cost plant can be installed initially and later added to to provide

efficient apparatus for the changed duty. The characteristics of any of the representative coke oven gases can be reproduced with simple apparatus, requiring the minimum of labour and no great amount of skill or experience to bring into service in a few hours' time."

On the face of it, it would appear unfortunate to have to turn to imported fuel oil as a source of either peak load or stand-by gas making plant; and the influence of water gas plant in taking care of the coke market cannot be forgotten. However, the Paper by Mr. Gill and Mr. Jones is sure to attract attention in the Gas Industry; it gave rise to much discussion at the Institute of Fuel meeting. An oil gas plant of a capacity of 2½ million cu.ft. a day is being erected at Newport (Mon.) to act as stand-by to the coke oven gas which is now being bought and supplied by the Newport Undertaking; and the results of its working, should the coke oven gas supply fail, will prove of great interest.

Research

The relationship between pure and applied research was discussed by Sir James Irvine, Principal of the University of St. Andrews, in the Frankland Oration of the Lancastrian Frankland Society. Applied research, he said, must always follow pure research and can never precede it. We have become accustomed to the idea, he continued, that, provided we have patience to wait, practical results of value emerge from those of pure research but this is often regarded as sporadic or accidental. It is not sufficiently realized—and this was the main theme of the Oration—that abstract research is a vital necessity if the world is to progress. Abstract research is vital to the progress of any industry and not least to that of the Gas Industry. Sir James Irvine remarked that the recruitment of young workers trained in the methods and spirit of research has been met by the provision of generous grants whereby promising young scientists are maintained at the universities after graduation. The scheme, which has now been in operation for two decades, has had a profound effect on higher scientific education in this country. Formerly only a limited number of research scholarships were available with the result that original scientific work was confined to the few who survived the stern selection process this stringency imposed, or who were determined at all cost and at the risk of their careers to pursue research. To-day, post-graduate work has become the normal orthodox pursuit of many who find in research little more than a sheltered occupation. "One wonders," went on Sir James, "if the road has not been made too easy and if there is more than a modicum of truth in the cynical statement that 'the ladder of learning used to be—ought to be—difficult of ascent; now it has become a subsidized escalator.' It is inconceivable that all members of the great army of young people now engaged in research are fitted for such work or approach it in the right spirit. . . . Research hands are much more common than research heads. This being so, we have developed a new technique in the search for rewards which has been turned into a continuous process. To the student, the spoils of research lie in scholarships, fellowships, and higher degrees; the goal of research is a thesis acceptable to examiners; to the professor the reward is the acceleration in the output of published papers due to the team work of skilled pairs of hands; to the industrialist there is the easy prospect of engaging for the most mechanical types of tasks men trained in research."

Sir James Irvine—and there is much to be said for his point of view—asked, in brief, for a slower output of work, but work of better quality, and the cultivation in the young research worker of the meaning and implications of pure research. As far as the Gas Industry is concerned this means forebearance and patience on the part of the "practical" gas engineer—which, however, will prove well worth while.

The Queen Visits W.G.C. Exhibit at Glasgow

We learn as we go to Press of an interesting item of news from the Empire Exhibition which was opened by H.M. the King at Glasgow yesterday.

During her visit to the Women of Empire Pavilion, Her Majesty stopped at the Women's Gas Council exhibit, a section of which takes the form of a model gas kitchen. The Queen remarked, "What a lovely kitchen; how beautifully clean it is." Her Majesty showed great interest in domestic matters, and, noticing a particular gas appliance, she asked what it was. It was explained to her that it was a "Hotmeal" cabinet.

Miss K. M. Halpin (Organizing Secretary of the W.G.C.) had the honour to be presented to the Queen.

Forthcoming Engagements

May

5.—B.C.G.A.—Manchester District Conference at Warrington.
5.—Midland Juniors.—Annual General Meeting. Address by R. J. Rogers.
6.—North of England Association.—Annual Meeting at Newcastle-upon-Tyne.
7.—Manchester and District Juniors.—Visit to Rochdale. Paper by H. J. Bradshaw.
9.—G.C.P.A.—Committee Meeting, 5, Victoria Street, S.W. 1, 2.30 p.m.
10.—Federation of Gas Employers.—Meeting of Central Committee, May Fair Hotel, W. 1, 11.30 a.m.; Annual General Meeting, Gas Industry House, 3.30 p.m.
10.—N.G.C.—Meeting of Central Executive Board, May Fair Hotel, W. 1, 12 noon; Annual General Meeting, Gas Industry House, 2.45 p.m.
10.—Illuminating Engineering Society.—General Meeting at Institution of Mechanical Engineers, 7 p.m. Address by Mr. E. Uytborck reviewing progress in illuminating engineering in Belgium.
11.—S.B.G.I.—Annual Meeting and Dinner, May Fair Hotel. Council Meeting at 56, Victoria Street, S.W. 1.
14.—Scottish Eastern Juniors.—Annual General Meeting at Dunfermline. Presidential Address of A. C. Rea.
17.—I.G.E.—Gas Education Executive Committee, 2.30 p.m.
19.—Wales and Mon. Association.—Annual Meeting under Presidency of Mr. J. Stephenson, Aberdare.
19 and 20.—Eastern Counties Association.—Spring Meeting at Boston.
21.—Yorkshire Juniors.—Meeting at Matlock. Papers by C. W. Hemmingway, A. P. Jennings, and T. W. Pickthall.
21.—Scottish Juniors.—Joint Visit to Neasden Works of Ascot Gas Water Heaters, Ltd.
26.—Midland Association.—Spring Meeting at Walsall.
31.—June 1, 2, and 3.—I.G.E.—75th Annual General Meeting.

June

17.—I.G.E.—Refractory Materials Joint Committee, Mellor Laboratories, Shelton, Stoke-on-Trent, 2.30 p.m. (*Altered from June* 16.)
18.—Western Juniors.—Summer Meeting at Dartmouth.
23.—B.G.F.—Visit to Empire Exhibition, Glasgow.
24.—Southern Association.—Summer Meeting at Lea Bridge.
25.—London and Southern Juniors.—Summer Visit to Folkestone.
30.—Southern Association (Eastern District).—County Meeting at Croydon.

July.

22.—I.G.E.—Joint Research Committee, 2.30 p.m. (*Transferred from June* 24.)
24.—I.G.E.—Liquor Effluents and Ammonia Committee, 11.15 a.m. (*Transferred from June* 24.)

Letter to the Editor

Tar Reconditioning Plant

SIR,—Our attention has been directed to the Paper on the Tar Reconditioning Plant at Birmingham read by Mr. E. T. Pickering before the Midland Junior Gas Association and published in your issue of March 30.

Statements made in the Paper itself and the subsequent discussion are liable to convey wrong impressions to readers who are not acquainted with the actual working conditions, especially those which now prevail since the introduction of the new type of sealing medium.

We would point out that, following the experiences with early holders, our Licensees, working in conjunction with the tar distillers, carried out extensive researches and evolved a sealing medium which has been used in holders storing all types of gas (vertical retort, horizontal retort, coke oven, and blast furnace gas) with definitely successful results.

The use of this sealing medium obviates the necessity for installing any type of ancillary tar reconditioning plant, which fact is demonstrated by the number of gasholders working successfully under various conditions to-day.

Yours, &c.,
J. JUTTE.

Waterless Gasholder Company, Ltd.,
13, Rood Lane, E.C. 3,
April 27, 1938.

Personal

Presentation to Mr. Frank P. Tarratt, M.Inst.C.E.

Mr. Frank P. Tarratt, M.Inst.C.E., who retired at the end of April from the position of Chief Engineer to the Newcastle-on-Tyne and Gateshead Gas Company, was last week the recipient of many tributes to his long and valued services with the Company and to his many activities on behalf of the Gas Industry. At a large gathering representative of workpeople and staffs of the various departments of the Company under his control, held at the Market Street Distribution Department and presided over by the Assistant Engineer, Mr. F. C. Willis, on April 25, he was presented with two suitably inscribed silver entree dishes and a gold fountain pen, and Mrs. Tarratt with a lady's travelling case. Mr. Reid, Manager of the Redheugh Station, and Mr. Laverick, Foreman Mechanic at the Elswick Station, made the presentations on behalf of all departments.

In the course of the Chairman's remarks it was pointed out that during Mr. Tarratt's term of office, which extended from 1921 to 1938, the sales of gas had increased from 3,886 million to 6,638 million cu.ft., excluding that of the recently acquired South Shields Undertaking, or by 70% during 17 years; the mains mileage had increased from 836 to 1,401 and the number of consumers from 125,924 to 223,967. When Mr. Tarratt took over control there were two Works and one Distribution Department, whereas today there are six Works and five Distribution Departments, besides two supplies of coke oven gas. Notwithstanding the quantity of coke oven gas purchased, which amounted to rather more than half the total quantity delivered, the quantity actually made at the various Works was practically the same as that in 1920. Reference was made to the excellent relations existing between management and workpeople due largely to Mr. Tarratt's able leadership, his interest in the careers of the younger men, to his high engineering attainments, and the many large projects carried through under his direction. Mr. Robert Gray, formerly Production Engineer to the Wandsworth and District Gas Company, who succeeds Mr. Tarratt as Chief Engineer, was welcomed by the Chairman and introduced to the assembly.

On Tuesday, April 26, at a Board Meeting of the Company, Mr. Tarratt was presented by the Chairman and Directors with a suitably inscribed piece of silver. Colonel W. H. Ritson, C.M.G., who made the presentation in the unavoidable absence of the Chairman (Mr. John E. Cowen), spoke of Mr. Tarratt's high qualifications and sound judgment in all that he had undertaken.

On Wednesday, April 27, at a dinner held in Mr. Tarratt's honour, by the North of England Gas Managers' Association (Special Purposes Section), at the Royal Station Hotel, Newcastle, and before a representative gathering of members, including also the Newcastle and Gateshead Gas Company's Station Managers and Distribution Superintendents, Mr. Tarratt was presented with a canteen of cutlery by Mr. Herbert Lees, Chairman of the Section, who was supported by Mr. T. P. Ridley, Vice-Chairman, on behalf of the members. Mr. Lees spoke in eulogistic terms of Mr. Tarratt's long service in the Gas Industry, of his valued services as Chairman of the Northern Regional Gas Council and Federation of Gas Employers, of his year of office as President of The Institution of Gas Engineers, which included the leading of the large Delegation to Canada and the United States of America, and of his Presidency of the North of England Gas Managers' Association while at the Darlington Corporation Gas-Works. Mr. Ridley emphasized Mr. Tarratt's high qualities of character and his ability as an engineer and referred to the pleasant relations that had always existed between them at Newcastle. Mr. Tarratt, in reply, reviewed his long connexion with the Industry, extending over fifty years, paid tribute to the loyalty and friendship of his colleagues in the north, and spoke of the valued help and encouragement he had always received from his wife during his strenuous years at Newcastle.

Mr. J. R. Bradshaw, of Hartlepool, proposed the toast of the Gas Industry, which was replied to by Col. S. S. Ogilvie.

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Miss I. R. SISUM, Director Secretary of Messrs. George Wilson Gas Meters, Ltd., was married on April 27 to Mr. C. AMOR, of Coventry. Miss Sisum has been with the firm for 23 years and is well known to many members of the Gas Industry. The bride was given away by Mr. J. H. Wilson, Chairman and Managing Director of the Company, and after the honeymoon, which is being spent in Switzerland, she will return to continue her long association with the Company.

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We learn that Mr. F. LODGE was recently appointed Secretary to the Wakefield Gaslight Company in succession to Mr. R. B. Wilson.

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After thirty-seven years Mr. J. A. BAYNHAM has retired from the position of Engineer and Manager to the Chatteris Gas and Coke Company. A presentation of a grandfather clock was made on April 25, the eve of his departure, by Mr. L. C. B. WILLIAMS, his successor, who spoke in appreciative terms of Mr. Baynham's long service both to the Company and the Industry. Mr. J. C. Gautrey, late Chairman of the Company, also spoke of his long association with Mr. Baynham and the excellent service he had rendered to the Company. The clock was the gift of the present Staff and Officials and the former Directors and Officials.

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Mr. C. M. D. BELTON, Engineer, Manager, and Secretary of the Shrewsbury Gas Light Company, and Mrs. Belton, who celebrated their silver wedding last week, received many congratulations, and none of them was more welcome than the spontaneous expressions of esteem from the various sections of the Company.

There were three presentations. The staff of the Head Office and Pride Hill Showrooms gave Mr. and Mrs. Belton a silver condiment set, the gift being handed over by Mr. R. H. Thomas. From the staff and workmen at the gas-works Mr. and Mrs. Belton received a set of silver cake prongs, the presentation being made by Mr. A. Wainwright, Works Superintendent. The third presentation came from the staff and workmen of the Distribution Department. Mr. F. Caudwell (Distribution Superintendent) opened the proceedings, and the oldest employee, Mr. F. Midgeley, handed to Mr. and Mrs. Belton a pair of silver entrée dishes.

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Councillor WALTER MUTER, of Edinburgh, has accepted a joint invitation from the Greenock Liberal and Greenock Unionist Associations to become prospective Liberal National candidate for Greenock. He is Chairman of the Public Utilities Committee of Edinburgh Corporation and a Past-President of the British Commercial Gas Association, Chairman of the Federation of Gas Employers of Scotland, and Chairman of the Joint Industrial Council for the Gas Industry of Scotland.

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Well known for his pioneer work in connexion with tar surfacing of roads, Dr. GUGLIELMINETTI has been elected *citoyen d'honneur* of Brigue, his native town. He has also been appointed, by Royal Decree, official delegate of the Principality of Monaco to the 8th International Road Congress at The Hague from June 18 to 25.

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Officials of Sunderland Gas Company presented Mr. C. C. WALMSLEY (General Manager and Secretary) with a canteen of cutlery on the occasion of his marriage on April 23 to Miss J. W. R. Paton, at present Assistant Medical Officer of Health at Worcester, to which reference has already been made in these columns.

Mr. W. L. Robertshaw (Engineer) presided, and was supported by Mr. R. Tindle (Accountant). The presentation was made by Mr. C. F. Barrow (Distribution Superintendent), who spoke of the high esteem in which Mr. Walmsley was held in all departments of the Company.

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Mr. F. W. WORT, Chief Clerk of John Wright & Co., Ltd., of Queen Victoria Street, acted as one of the linesmen at the Football Association Cup Final at Wembley on Saturday. He will undoubtedly be envied by his friends in the Industry for his close-up view of this famous encounter. On Friday night Mr. Wort took part in a National Broadcast, "On the Road to Wembley," and one of his most interesting remarks was that Mr. Jewell, the Referee, would probably cover about twelve miles during his regulation of the match.

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George Wilson Gas Meters, Ltd., announce that Mr. F. G. B. SHAW has joined the Company as Sales Representative. Mr. Shaw received his training under his father at the Buxton Gas-Works and for the past three years has been in the service of West's Gas Improvement Company, Ltd., Manchester. He will act in the capacity of Assistant to the Manchester Branch Manager, Mr. D. Jacobs, who has been in charge for the past six years and is responsible in no small way for the increase in business and the consequent necessity of acquiring larger and improved premises in the Manchester area.

Obituary

As we go to Press we learn with regret of the death of Mr. E. BERTRAM WILLIAMS, a Director of Messrs. John E. Williams & Co., Ltd., paint manufacturers, of Partington, nr. Manchester. Mr. Williams served his apprenticeship with Messrs. R. & J. Dempster, Ltd., whom he left to go to sea—with a Chief Engineer's ticket. He subsequently joined his father's firm as Chief Representative, and was elected to the Board on his return from the war in which he served in the Navy as an Engineer-Lieutenant. His father, John E. Williams, was a founder of the S.B.G.I. Mr. Williams, who was sixty years of age, leaves a widow and three children.

* * *

The death took place on April 26 of Mr. WILLIAM ROLLO, for over thirty years Manager of the former Meigle Gas Company.

News of the Week

The Centenary of the Gas Undertaking was last week celebrated by the Colne Corporation by holding an exhibition of gas appliances in the Municipal Hall. Alderman Keighley remarked that in 1877 the then local authority purchased the Undertaking. Last year constituted a record for the sale of gas appliances for domestic purposes.

Members of The Institution of Gas Engineers will be welcome at a Meeting of the Institute of Fuel on May 12 at 6 p.m. in the Meeting Room of the Junior Institution of Engineers, 39, Victoria Street, S.W. 1. A Paper will be presented by Dr. F. W. Myddleton on "The Synthesis of Hydro-Carbon Oils; Process of Synthetic Oils, Ltd." Members are also invited to the Meeting of the I.E.S. on May 10.

The Food and Health Demonstrations, in which the South Metropolitan Gas Company are co-operating with the *Kentish Mercury* were re-opened after the Easter holidays on April 25 at Deptford by the Mayor (Councillor F. Bright). Attendances during the week made it clear that their appeal to the public is strengthened as the demonstrations proceed. This week they are being held at Charlton.

"The Co-ordination of Gas Supply" is the title of a Paper which will be read by Colonel W. M. Carr at a meeting of the Royal Society of Arts, John Street, Adelphi, on May 11 at 8.30 p.m. The Chair will be taken by Mr. A. E. L. Chorlton.

Extensions and Improvements of the Gas Showrooms are contemplated at Middlesbrough, the Corporation Gas Committee having approved the purchase of additional property for this purpose. The Engineer and Manager, Mr. J. W. Pallister has been authorized to prepare the necessary plans and specifications.

We Have Received from the British Engineers' Association, 32, Victoria Street, S.W. 1, a copy of their "Classified Handbook of Members and Their Manufactures" for 1938. Within the next few weeks, 5,500 copies of this publication will have been posted to carefully selected known buyers of engineering product in the home and overseas markets, and from previous experience the Association confidently expects a substantial increase in the flow of enquiries and orders to members as a result. Copies of this useful publication will be posted free of charge to anyone interested in the purchase of British engineering plant, machinery, and accessories on application being made to the Secretary of the Association.

Value of the Clinical Gas Lamp

A Doctor's Experience

The following extract is from the Annual Report of Dr. J. M. Morris, Medical Officer of Health at Neath:

"The use of the infra-red lamp, the gift of Mr. Jackson, in the form of a 'Clinical Gas Lamp,' introduced by Sir Leonard Hill, has again proved of the greatest benefit. When first brought out it was proposed for treatment of certain types of rheumatism and allied disorders, and as such did not seem to me to have a great field of application in clinic treatment of young persons. Being, however, on one occasion very thoroughly 'up against it' in connexion with a large and most painful abscess in a boy who had been attending the clinic for years for similar trouble I thought of this lamp. The effect was something that one had difficulty in believing possible, pain and insomnia being relieved, while the abscess rapidly cleared up. Following upon this it occurred to me to try the same treatment with boils. Distinct success followed, relief from pain with rapid healing proving this treatment a definite advance on anything of which I had heard. I thought I had made a brilliant discovery, and my annoyance can be imagined when subsequently I read that others had forestalled me. The greatest benefit from the use of this lamp lies in its sedative influence, easing pain and bringing the inflammatory conditions to an end. Its application in enlarged (non-tuberculous) glands is excellent, driving out of existence iodine paint and the old-time linseed poultice with or without the favoured fat bacon accompaniment.

"This lamp has been used locally for a variety of states, and complimentary references to results obtained in Neath clinics are made in Dr. Annandale Troup's book on infra-red irradiation. A great asset in its application is that it is fool-proof, and therefore suitable for home use, in contradistinction to ultra-violet treatment, the latter being dangerous in all but trained hands. Infra-red therapy has not yet become universally accepted by the general practitioner, so that there is still great room for work at the clinics. I am hoping that the time will come when its sedative action may be found to be beneficial in such trying troubles as whooping cough and enuresis (bed-wetting) just as it has been noted by me in cases of chorea and insomnia."

"GAS JOURNAL" Directory

In order that readers may be able to keep the particulars contained in the "JOURNAL" Directory up to date, we summarize in the following list various changes which have occurred during the past month:

Page 16. CHATTERIS. L. C. B. Williams appointed E. & M. vice J. A. Baynham retired.
" 38. KNOTTINGLEY. B. Arnold, E. M., & S., retired. A. Pickard appointed Acting M. & S.
" 44. MARYPORT. W. A. M. Stewart appointed E. & M.
" 70. WAKEFIELD. F. Lodge appointed S. vice R. B. Wilson.
" 72. WATFORD. K. C. Rees appointed Watford W.E.
" 88. LINLITHGOW. T. McDougall appointed M. vice W. A. M. Stewart resigned.

The Training of Works Managers

Examination Scheme for Management

A training and examination scheme for works managers has been established by the Works Management Association, Terminal House, 52, Grosvenor Gardens, S.W. 1, and courses are now being prepared in a number of technical colleges in the principal industrial districts in this country. When time has elapsed for candidates to complete the curricula, entrance by examination will be the basis of membership. For a limited time, however, senior works managers will be eligible without examination.

The scheme is the result of the work of a Professional Standards Committee which has been taking evidence and pursuing researches for the past three years. The committee members include not only educationists such as Professor Arnold Plant, of the London School of Economics, and Professor Sargant Florence, of Birmingham University, but also business executives taking a lead in scientific management. The Association was established seven years ago and is the only incorporated institution of works managers in this country. Its first President was Mr. E. J. Fox, Managing Director of the Stanton Ironworks Company. "The Association," he says, "has grown by leaps and bounds from a comparatively small body of production men who had the desire to provide an association to study management, as something more than a technical society was required." Lord Amulree, who as the first President of the Industrial Court has always been a keen observer of industrial trends, is a Vice-President of the Association. The Association is concerned not with technological questions, but with problems of management, of vital importance to managers in any and every branch of industry.

The professional organization of works managers was long overdue, as was evidenced at the first National Banquet organized by the Association a year ago. Sir Holberry Mensforth, who is one of the outstanding works managers of this generation, was the principal speaker. He feared that the modern tendency to stress the sales side of industry was full of dangers. Works management, he said, must be made not less attractive than sales management.

Sir Charles Hipwood, Director of the National Union of Manufacturers, said he saw in the Works Management Association one of the most interesting developments in industry. There are, he said, a large number of distinguishable groups such as accountants, chemists, and engineers. It is most interesting to see that the works managers are now becoming conscious of themselves as a distinguishable group, developing a professional feeling, with their own technique.

Amalgamation and Grouping

Middlesbrough and Stokesley.

The Middlesbrough Corporation Gas Committee have agreed to take over the undertaking of the Stokesley Gas Company, Ltd. The Town Clerk has been instructed to take the necessary steps to complete the purchase. The Stokesley Company, according to the latest statistics, has a make of 4½ millions per annum and has 200 consumers.

Science Museum, South Kensington

A Gas Controller Exhibit

An exhibit which should be of great interest to many in the Gas Industry is being added to the Time Measurement Section at the Science Museum, South Kensington. It consists of a very comprehensive collection of clock-operated gas controllers, illustrating the development of these useful appliances from the first rather crude types to the highly efficient controllers of the present day. The "Newbridge" and "Gunfire" controllers, both the products of pioneer firms, as well as other well-known forms, are well represented, specimens having been presented to the Museum authorities by the firms concerned, and efforts are to be made to obtain a complete collection.

One of the most interesting of the exhibits is a model of the first gas controller, devised and patented by a Dr. Thurgar, of Norwich, many years before commercial controllers were introduced. The ignition arrangements of this controller are very interesting, for the gas is reduced to a very small flame during the day time, and this is shielded by a special guard operated by the clock. The model was made by the Horstmann Gear Company, Ltd., of Bath, from the original patent drawings, and it is loaned by the firm to give completeness to the historical section of the exhibit.

The range of modern controllers illustrates some developed for special uses besides the standard types. The addition of this exhibit is very pleasing, for previously clock mechanism of this kind was represented only by some electrical time-switches. It has, of course, no connexion with the Gas Gallery scheme, sponsored by the British Gas Federation, to which we referred editorially on Feb. 9.

Eastern Counties Association

Forthcoming Meeting at Boston

The Ninety-Fourth Half-Yearly Meeting of the Eastern Counties Gas Engineers' and Managers' Association will be held at Boston on Thursday, May 19 next, under the Presidency of Mr. W. C. Chapman, Engineer and Manager of the Boston Gas Light and Coke Company. The business meeting will be held in the Assembly Rooms at 3 p.m., when Mr. Chapman will read his Presidential Address.

During the morning the Boston Gas-Works will be inspected, followed by luncheon, at the kind invitation of the Chairman and Directors of the Company. Ladies are invited to attend the inspection, and will partake of luncheon separately at the Peacock and Royal Hotel. After luncheon, the ladies will be taken to Tattershall Castle where an inspection of this historic building will be made, afterwards proceeding to Woodall Spa, where tea will be provided at the Petwood Hotel. The Annual Dinner of the Association takes place at the Assembly Rooms at 7.30 p.m., followed by dancing.

The Annual Golf Competition for the trophy presented by Mr. D. W. Turner will be played on the Boston Course on the evening of Wednesday, May 18, while it is proposed to run a Bowls match concurrently on the green of the Boston Bowling Club.

On the Friday morning 'buses will be available to take members and ladies to inspect the pumping plant at the new Fordington water-works and the reservoirs at Revesby, through the kindness of the Chairman and Committee of the Boston Water Department. Luncheon will be served at Revesby.

The T.I.G.B. Comes of Age

Over 25,000 men have been enabled to embark upon careers in engineering through the medium of correspondence training by the Technological Institute of Great Britain, which this year celebrates its coming-of-age. The tutorial service of the T.I.G.B. embraces comprehensively the various branches of Engineering and Allied Technology. That these are covered most thoroughly may be judged from the fact that the Institute operates over 200 courses, which number is claimed to constitute the widest choice of engineering courses in the world.

The courses fall into two categories. The first includes Engineering Educational Courses, known as Diploma Course, and the second comprises the courses covering the Examination Syllabuses of the various Professional Institutions, Government Departments, and other bodies. Since its inception in 1917, the T.I.G.B. has specialized in the training of examination candidates, and to ensure that a student shall study only for an examination for which he is eligible to sit; the regulations governing admission are clearly set out. The Institute guarantees training until successful to every student and conducts the training of students residing in all parts of the world.

Coal Supplies in Scotland

Serious Problem Facing Gas Undertakings

At a meeting in Edinburgh on April 29, presided over by Councillor Muter, the serious problem facing gas undertakings was commented upon. The Chairman reported on a meeting which had been held with the Scottish District Coal Mines Scheme to discuss the question of coal supplied for gas undertakings. He himself and Mr. Jamieson, Engineer and Manager to the Edinburgh Gas Department, had attended a meeting with delegates from Glasgow Corporation, which he regretted to say had proved very unsatisfactory.

The meeting was the result of a joint memorandum submitted by Glasgow and Edinburgh on the question of coal supplies. The coalmasters were not in sympathy with the suggestion of Mr. Jamieson that supplies should be drawn from one area for a certain period, and from another area during another period. Mr. Jamieson said that their contract stipulated that in the event of failure to deliver the Corporation could buy elsewhere, but where could they buy? Bailie Walker suggested that one reason for the trouble was that there was now no competition for supplying gas undertakings with coal. Replying to a question about the possibility of buying foreign coal, Mr. Jamieson said that American coal was suitable but the price high.

Another Display from Olympia

This effective display of "Ideal" gas boilers and accessory appliances formed another of the many interesting exhibits at the *Daily Mail* Ideal Home Exhibition which we described in these columns a fortnight ago.

Annual Meeting of Gas Salesmen

Representatives from Seventy Undertakings

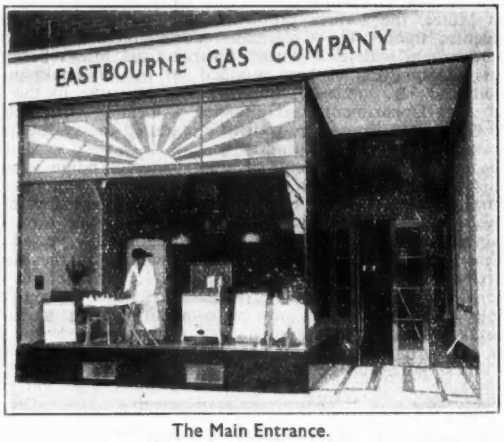
The ever-increasing importance of the sales side of the Industry and the growing recognition its personnel is receiving was strikingly demonstrated by the excellent attendance at the Annual Meeting of Gas Salesmen held at Caxton Hall, Westminster, S.W. 1, last Friday.

Major F. J. Bywater presided over a gathering which was representative of no fewer than seventy gas undertakings, including members from all the district Salesmen's Circles. Mr. W. D. Rowe's report on the work of the Circles during the past year made encouraging reading and indicated the interest which is being taken in the work of the Circles; it mentioned the formation of several new Circles during the year and also referred to the success of the Public Speaking Competition and to other plans which the B.C.G.A. have under consideration for the assistance of the salesman in his work.

The Goodenough Gold Medal was presented to the Author of the best Paper read before a Salesmen's Circle during the past session, while Area Silver Medals were awarded to runners-up. The Gold Medal for the Public Speaking Competition was also presented. A stimulating address was given by Mr. W. H. Thomas (Sales Director of Messrs. Scott & Bowne, Ltd.), and during the afternoon members visited the *Daily Mail* Ideal Home Exhibition at Olympia.

A fuller report of the meeting will be published in this month's issue of the "GAS SALESMAN."

New Gas Showrooms for Seaford - -



The Main Entrance.

Premises of which the Eastbourne Gas Company and the residents of Seaford may well be proud were opened in Sutton Park Road, Seaford, last week, when we had the opportunity of inspecting the new showrooms on the occasion of a private reception given by the Chairman and Directors of the Company.

The new building, which occupies a prominent corner site, not only enhances the architectural amenities of Seaford but also provides a service centre for gas consumers in this section of their area of supply well worthy of the high standards which are associated with the Eastbourne Gas Company.

We gather that the residents of this Sussex resort are publicity-minded and set store by their geographical independence, and although the Eastbourne Gas Company have now controlled the supply of gas in Seaford for more than three years, it was a wise as well as a generous gesture on the part of Mr. F. H. Jones (Chairman of the Company) to foster this independence by meeting the wishes of the Urban District Council in promising to have the words "Seaford Branch" added to the name of the Company on the front of the new showrooms and on subsequent local account forms. As the Chairman of the U.D.C. pointed out, they did not want people entering the town by this road to imagine they were in Eastbourne on reading the name on the building!

The premises cover an area of some 5,000 sq.ft., and the frontage includes a shop which will be leased for the time being but will be available for future extension of the ground-floor showroom when required, provision having been made for the easy demolition of the "party" wall.

The main showroom is laid out on modern lines, with an "open" type window and all gas appliances connected up for demonstration purposes. A neat little sink is fitted against one wall, with instantaneous and boiling water heaters above, while across the far corner is an attractive period fireplace showing a coke grate to good effect. The room is bright and airy and is illuminated by up-to-date lighting fittings. In a basement showroom below provision is made for the display of large-scale cooking apparatus for hotels and catering establishments and of reconditioned appliances. Here also, in the form of a "working exhibit," is the Potterton gas boiler plant which takes care of the central heating and hot water supply for the whole building. This consists of twin "Emperor" boilers coupled to a 100-gallon lagged storage tank for hot water and a "Rex" boiler, thermostatically controlled, for the central heating. The latter system is additionally controlled by a room thermostat in the lecture theatre and a clock control—the whole providing an attractive and practical demonstration of the cleanliness and general suitability of gas for such purposes.

The Lecture Theatre.

A short flight of stairs from the ground-floor showroom brings one to the very fine lecture theatre. The lecture theatre in the Company's chief showroom at Eastbourne is well-known throughout the Gas Industry as a splendid example of its kind, and it is therefore to be expected that its counterpart at the Seaford Branch should be planned on similar, if not, perhaps, such ambitious, lines. The theatre seats approximately a hundred persons, the attractive green plush tip-up seats sloping down in tiers to the platform at the bottom. The latter is equipped with a composite kitchen cabinet set, with sink and gas refrigerator built in, while on either side are a wash-boiler and cooker, the last-named being fitted with a direct reading large-dial meter to register the exact amount of gas used for any cooking process. It is intended to hold regular cookery demonstrations in this theatre, after which tea will be provided in the "circulating area" behind the top row of seats. A small kitchen adjoins this area. Adequate ventilation of the theatre is ensured by grills above the pendant lamps connected with a duct in the ceiling.

A further flight of stairs brings one to a beautiful dance room at the rear of the building. In addition to catering comfortably for up to 100 dancers, this room will be used for social gatherings or dramatic entertainments, a stage and two small dressing rooms being provided. A dome in the centre of the ceiling contains what is believed to be the largest gas fitting ever manufactured for lighting purposes. It was made up to the Company's specification by Messrs. Falk, Stadelmann, & Co., Ltd., and consists of a many-sided construction of opaque glass and bronze metalwork. Distant-controlled in two sections, this fitting provides a wonderfully pleasing, even, and shadowless illumination.

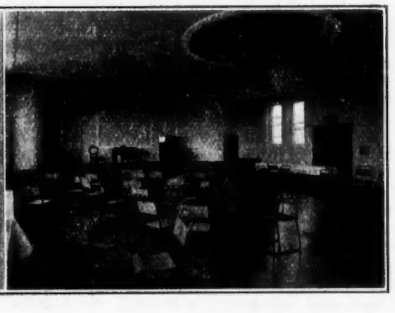
On the same floor is a small office for the showroom manager, together with a suite of fine, light rooms which it is intended to lease as offices to outside firms. With their pleasing decoration scheme and attractive modern gas fires they would be eminently suitable for an architect. This floor is approached by an additional stairway direct from the street. The top floor of the building is divided into two self-contained flats—one for the caretaker and the other for the local distribution official. All hot water requirements for these flats are provided from the same gas boiler plant already referred to. An outside staircase also serves the flats.

The Reception.

Mr. F. H. Jones presided at the reception on April 25 prior to the opening of the new premises to the public on the following day. He was supported by Mr. F. Eliot Williams, O.B.E., Mr. B. Bradford, and Mr. H. F. H. Jones (Directors), Mr. S. E. Knowles, F.C.I.S. (General Manager and Secretary), and other senior officers of the Company. Among those present were Mr. T. Godfrey (Chairman of the Seaford U.D.C.), members of the

Demonstration Theatre.

Ground-Floor Showroom.



The Dance Room.

Council and prominent local residents together with Mr. A. Bailey (the Architect), Mr. C. M. Croft (Chief Engineer and General Manager of the Wandsworth and District Gas Company), and others.

Mr. JONES extended a cordial welcome to those present and said how proud the Company were at the presence of so many visitors on that occasion to inspect their new showrooms. He hoped they would be an improvement to the town as well as of assistance to the Company. They would provide facilities for local consumers to view with comfort and convenience what the Company could offer them. He thought they had in their new building not only a good showroom but also a fine piece of architecture.

Mr. T. GODFREY, having suggested the addition of the words "Seaford Branch" on the front of the building, went on to describe the premises as palatial and a credit to the Eastbourne Gas Company. He trusted that the provision of the new showrooms would be fully justified and that success would attend the Company's efforts. He recalled the progress of public lighting in the town—from 150 gas lamps in 1914 to nearly 400 at the present time, the illumination from which was entirely satisfactory. In conclusion, he wished the Company all success in the future.

Mr. JONES thanked the Chairman of the Urban District Council for his remarks and promised to meet his wishes in regard to the suggested addition to the title of the Company so far as local activities were concerned.

Women's Gas Council - - - -

AT THE ANNUAL MEETING OF THE W.G.C.

From left to right: Miss K. M. Halpin (Organizing Secretary), the Countess of Limerick, the Dowager Lady Nunburnholme, and Miss M. Wolseley-Lewis.

The increasing interest which is being taken in the work of the Women's Gas Council was evident from the splendid attendance of members at the Third Annual General Meeting, held on April 27 at Gas Industry House under the able chairmanship of the Dowager Lady Nunburnholme, J.P.

The Minutes of the last Annual General Meeting were taken as read, after which the SECRETARY (Miss K. M. Halpin) announced apologies for absence from, among others, the following: Mrs. W. A. Cadbury, Lady Emmott, Lady Humphries, Countess Jellicoe, Mrs. Stephen Lacey, Sir David and Lady Milne-Watson, Mrs. Warren Pearl, and Sir Isidore Salmon.

The Third Annual Report was then presented, in reference to which Lady Nunburnholme said they would all appreciate the truly amazing progress of the Women's Gas Council, whose membership during the three years of its existence had grown to more than 9,300, and this did not allow for affiliated societies with hundreds of members. The publicity accruing from all this must be enormous, and it was a great compliment to the Executive Committee that they should have reached such a large membership in so short a space of time.

Miss HALPIN then read the Annual Report, concluding with a warm tribute to the splendid co-operation of her staff, for their work and loyal support during the year. The following points of interest are reproduced from the Report:

The third year of the work of the Women's Gas Council has been marked by progress in all directions, particularly in the rapid increase of membership and the formation of new branches. Over 2,000 new members have been enrolled during the year.

The Report shows that the Council is receiving increased public recognition, and many opportunities for co-operating with other organizations have occurred during the year, and by this means its usefulness is being continually extended.

Another important development in the Council's work has been the formation of a Training Committee whose object is the standardization of the qualifications needed for Demonstrators in the Gas Industry, the further extension of the instruction and training for such work and the establishment of conditions for the award of a Diploma for those fully qualified which it is hoped will ensure them a definite professional status.

Branch Formation.

Since the last report branches have been formed in the following centres: Enfield, Leatherhead, Littlehampton, Poplar, Tamworth, Leyland, Prescot, Runcorn, and Ormskirk, while the Tottenham and District branch have this year doubled their number of small units, which now number twelve, the new ones being Arsley, Enfield, Hitchin, Palmers Green, Stevenage, and Waltham Cross. The total membership of the Women's Gas Council at March 31, 1938, was just over 9,300, which does not include the affiliated organizations at Bristol and Exeter.

During the first few weeks of April there will be Inaugural Meetings at Leicester, Swindon, and Crouch End, while preparations are being made for starting in at least another half a dozen localities.

During the last year the Women's Gas Council has worked in close conjunction with a number of national organizations.

The Women's Gas Council was represented on the Council of the Domestic Services Exhibition, which was held at the Royal Horticultural Hall, Westminster, from Jan. 15-21, 1938. At the Empire Exhibition to be held in Glasgow this year, the Council will have a stand in the Cultural Section of the Pavilion of the Women of the Empire. The exhibit will be a working kitchen, designed by Mrs. Darcy Braddell to show the value of planning in all branches of household work. Demonstrations will be held in the kitchen throughout the six months of the Exhibition, to show the labour-saving features of its plan. Part of the stand will take the form of an Enquiry Bureau where experts will be in attendance to answer questions on any household problem.

The Battersea Polytechnic course in Gas Cookery Demonstration was this year extended to cover a full year's course of two evenings a week. The syllabus includes voice production, practice in demonstrating, and the knowledge and use of gas apparatus, and is open to students at present studying for a Cookery and Domestic Science Diploma, and also to those already employed in the Gas Industry. The first examination was held in June of last year when 12 candidates qualified for the award of the Women's Gas Council Certificate. This Certificate is the necessary qualification for the Women's Gas Council Diploma, which is awarded to holders of the Certificate who have completed a minimum period of two years' practical experience in the Gas Industry.

The Second Summer School for Demonstrators was held from Sept. 17-21 at King's College of Household and Social Science, by kind permission of the Warden and College Council, and was attended by one hundred and ten delegates from all parts of the country.

The London and Home Counties Demonstrators' Circle was formed a little over a year ago, and now has a membership of 135, representing all the large Gas Undertakings in and around Lonon. Miss E. Willans, M.B.E., of the Gas Light and Coke Company, is Chairman.

Miss A. M. S. Wilson, of the headquarters staff, has given many lectures this year to branches of the Women's Gas Council, and to other organizations such as Community Centres, Clubs, British Legion Women's meetings, Unemployed Women's Clubs, Townswomen's Guilds, and other women's meetings. The cookery classes run last year in co-operation with the National Council of Girls' Clubs were extended during the autumn. The headquarters panel of lecturers is at the disposal of branch secretaries.

Since the last Annual Report the shape of *Fanfare* has been altered. The pages are half the former size, but the number in each issue has been doubled. The news of the Women's Gas Council is bound with the magazine, instead of being issued as a separate supplement. These changes have proved popular.

Among new features is a series of articles supplied through local branches of the Women's Gas Council, describing work of special interest in the district. In several branches magazine secretaries have been appointed.

While very gratefuly recognizing the help and co-operation of the Gas Industry, the Women's Gas Council hopes that its work is of benefit not only to its members and to women employed in the Industry, but to the prosperity of the Gas Industry as a whole. It is hoped that it also offers a definite contribution to the dignity of women's work generally, and by broadening the housewife's outlook and giving her increased leisure enables her to take a more active interest in national affairs.

Mrs. NEWTON WADE (Cardiff) proposed the adoption of the Report in the unavoidable absence of Mrs. Eric Evans. In doing so she congratulated most heartily Miss Wolseley-Lewis and Miss Halpin on so comprehensive a review of the excellent work of the past year. The adoption of the Report was seconded by Miss M. HOWES-SMITH, M.A. (Altrincham).

Lady DAVIS proposed the adoption of the statement of accounts for the year ended March 31, 1938, and Mrs. LAWRENCE (Poplar) seconded the proposition, which was carried unanimously.

Elections.

Lady NUNBURNHOLME, in moving the re-election of the Marchioness of Londonderry as their President, said she was sure they should agree to send Lady Londonderry a message saying how proud and honoured they were that she had accepted office for another year. (This election was unanimously approved.)

On the proposition of Miss HALPIN the following Vice-Presidents were unanimously re-elected:

Miss Adler, C.B.E., J.P.	The Countess Jellicoe
Mrs. W. A. Cadbury	The Countess Limerick
Lady Chatterjee, O.B.E., M.A., D.Sc.	Sir David Milne-Watson, Bt.
	Lady Milne-Watson
Lady Davis	The Dowager Lady Nunburnholme
Lady Duckham	Mrs. Warren Pearl
Lady Emmott, J.P.	Sir Isidore Salmon, C.B.E., D.L., J.P.
Miss Faithfull, C.B.E.	
Mrs. A. S. Giles	Lady Steel-Maitland
Sir Francis Goodenough	Lady Sydenham of Combe
Lady Humphries	Lady Woodward

with the additional election of Viscountess Davidson, M.P.

The following members of the Executive Committee remain in office:

Lady Ruth Balfour	Miss Kirkby
Mrs. Cottington-Taylor	Mrs. O. Roberts
Miss M. B. Francis	Miss Robinson
Miss O. Humphries	Mrs. Fred Taylor
Mrs. Iredale	Miss Ellington-Wright

The following retired, namely, Miss Willans, Miss Webster, Mrs. A. L'Epine Smith, and Miss Mathias, and with the exception of Miss Webster offered themselves for re-election. Since Miss Palfreman resigned during the year, there were five vacancies on the Committee, and in addition to the three names mentioned Mrs. C. E. Abbott (Altrincham) and Mrs. H. M. Royle (Southend) were nominated by their respective branches. There were therefore five nominations for five vacancies, and the following were declared elected:

Mrs. C. E. Abbott (Vice-President, Altrincham Branch).
Miss A. M. Mathias (Secretary, Cardiff Branch).
Mrs. H. M. Royle (Secretary, Southend Branch).
Mrs. A. L'Epine Smith (Lady Superintendent, South Metropolitan Gas Company).
Miss E. Willans, M.B.E. (Head of Home Service Section, Gas Light and Coke Company).

The co-opted members last year were Mrs. Darcy Braddell, Miss Ferguson, Mrs. Eileen Murphy, Miss M. Thomson, and Miss E. L. Crawford; the SECRETARY stated that their re-election lay in the hands of the Executive Committee at their first meeting.

On the proposition of Mrs. WHITBURN, seconded by Mrs. ROYLE, the Council's Auditors (Messrs. Cash, Stone, & Co.) were re-appointed for the ensuing year.

Lady NUNBURNHOLME then introduced the Countess of Limerick, who addressed the members on "More Women in Public Life?" There followed a short discussion, after which Miss Wolseley-Lewis proposed a hearty vote of thanks to Lady Limerick for her Address.

The meeting concluded with a cordial expression of thanks to Miss Wolseley-Lewis on the proposition of Miss WILLANS.

Branch Formed at Crouch End.

A Branch of the Women's Gas Council was inaugurated in the Demonstration Theatre at the Crouch End Showrooms of the Hornsey Gas Company on Thursday afternoon, April 28—Mr. K. L. Mortimore (General Manager and Secretary of the Company) presiding over a large attendance.

Miss K. M. Halpin (Organizing Secretary of the Council) gave a very interesting Address outlining the aims and objects of the W.G.C., and at the conclusion of the meeting no fewer than 71 members were enrolled. Afternoon tea was provided, and many of those present subsequently took the opportunity of inspecting the fine new showrooms.

Miss H. L. Lange, one of the Hornsey Company's demonstrators, was appointed Hon. Secretary of the new Branch.

Industrial Co-Partnership Association Conference

A conference on profit-sharing and co-partnership was held by the Industrial Co-Partnership Association and the Gloucester Gas Light Company at the Company's showrooms on April 26. In the unavoidable absence through indisposition of Mr. G. M. Gill, Deputy-Chairman of the Company, Mr. J. H. Jones, Director, presided, and was supported by Mr. F. W. Rafferty and Mr. John Ramage, Chairman and Secretary, respectively, of the Association, and Mr. Morgan Matthews and Mr. F. W. Rogers, Director and Secretary, respectively, of the Gloucester Company. Mr. Gill's opening remarks were read by Mr. Jones. Having traced the history of the movement and commenting on its progress, Mr. Gill observed that the Gloucester Gas Light Company adopted the co-partnership system in 1908, and since that time £27,178 had been distributed to the co-partners as bonus and £8,008 as interest. The position at the end of last year showed that the present 249 co-partners had standing to their credit a total of £20,644, or approximately £83 per co-partner. A fair proportion of that substantial sum of money had been accumulated as a result of savings on the part of the co-partners by deductions at their request from their wages. Since the scheme started 20 years ago those savings in wages had amounted to the total sum of £18,040. For the past year the Gloucester Gas Company paid a bonus of 5½% on the wages earned by the co-partners. Mr. Gill further explained that one half of the amount due to each member was credited to a Trust Account which remained on deposit earning 4% per annum. The other half was credited to a Withdrawal Account to which the member might add any savings of his own to earn 4% interest. That might be withdrawn at any time at seven days' notice.

Mr. Gill proceeded to state that he could testify to the good which co-partnership in the Gloucester Company had done in increasing the human happiness of its members, in increasing their zest in their work, and in forwarding the best interests of the Company. Altogether, the scheme had been a great success, and it had been carefully nursed by two gentlemen who had been Directors of the Gloucester Gas Light Company for many years. He referred to Mr. J. H. Jones, who was Chairman of the Company from 1918 to 1934, and who had been Chairman of the profit-sharing scheme since its inception, and Mr. Morgan Matthews, who was Deputy-Chairman for a number of years. Experience showed that it was unwise to adopt the co-partnership scheme, and then to leave it to look after itself. It must be tended and nursed with care and interest to obtain the rich crop which could be reaped from the system.

Mr. J. H. Jones, in some personal remarks, said that 30 years ago he was greatly impressed with the hoped-for advantages of profit-sharing, and got the Gloucester Company's scheme started in 1908. Mr. Gill had referred to the success of the scheme, and he (Mr. Jones) would like to say that the Severn Valley Gas Corporation most fully upheld the scheme as though it were of their own making.

In the course of his Address, Mr. Rafferty pointed out that the Industrial Co-Partnership Association existed for the purpose of advising those who contemplated co-partnership schemes. Mr. Ramage expressed appreciation of the Gloucester Gas Light Company's hospitality in providing tea, and thanked Mr. Rogers, the Secretary to the Company, on whom a large measure of the responsibility for organizing the conference had fallen. Thanks to Mr. Jones for presiding were expressed by Mr. Morgan Matthews.

Athletic and Social

Dublin Gas Badminton Club.

The Alliance and Dublin Consumers' Gas Company Badminton Club recently held an "At Home" when the prizes won by the Club teams during the season were presented to the winners by Mrs. W. J. Grey, wife of the President and Captain of the Club. In open competition the Club secured two challenge cups and honours in three Leagues. Two cups were also presented by Mr. Grey for competition among the members of the Club.

The Manufacture of Coal Gas from Fuel Oil

by
G. M. GILL
and
LEON B. JONES

A Paper read before the Institute of Fuel at a Meeting held in London on April 7.

Oil gas as the term is applied to the town gas served by all the gas undertakings in the western part of the United States for more than 30 years is, to all intents and purposes, coal gas made from oil. Not merely similar but practically identical in composition and physical characteristics; it is, in fact, indistinguishable from coal gas.

When, in the early days of this century, the enormous production of petroleum in California made the use of any other raw material for gas manufacture an economic impossibility, creative apparatus was devised to utilize this marvellous fuel by the Gas Industry. With recognition of the many advantages of oil for fuel and its general adoption in commerce and industry, the price naturally rose and the Gas Industry was confronted with the task of improving the process and apparatus to keep pace with the advancing price of oil. This was a strenuous race, but resulted in the development of oil gas plant and equipment to a high degree of efficiency.

The manufacture of gas from heavy oil—oil gas—is not to be confused with the use of a light oil to carburet a base gas made from solid fuel. In the oil gas process oil alone is used and is carbonized at high temperatures. The process is cyclical, and the oil is sprayed with steam into checkerwork of refractory brick, and in a matter of seconds, rather than hours as with coal gas, the carbonizing is complete. As the volatile matter is converted to the desired quality of gas, part of the fixed carbon remains, but instead of coke the residue from oil carbonizing is a flocculent form of carbon carried out of the generator in the gas stream and separated from the gas by washing.

Residual Carbon.

Unlike the coke from coal carbonization, oil gas carbon, though theoretically an almost perfect fuel, has had a very low net value. The expense and investment involved in handling and briquetting to a satisfactory domestic fuel, combined with adverse climatic conditions and the total lack of public demand for solid fuel in that area determined most of the oil gas undertakings to pursue the effort for ultimate complete gasification, rather than to promote a competitive domestic fuel. For many years the gas companies had instilled into the public mind that all heating purposes could be better served with gas, and this, too, had its effect upon a decision to use oil exclusively and sell only gas for all domestic and commercial purposes. The years that followed unquestionably proved the wisdom of this decision. Complete gasification was called for and in a new type of process with a new type of fuel—new to the Gas Industry and about which very little was then known. This was no mean task. Perfection is seldom attained by such strides, and the oil gas process was no exception. It has required an evolution of consistent improvement and constant endeavour to bring the process to its present state of efficiency.

A considerable amount of the carbon produced by the early forms of oil gas apparatus was used as boiler fuel, and water gas plant that had been formerly used was brought back into service as auxiliary plant, the surplus carbon being used for generator fuel. Thus, with duplicate handling and double plant, complete gasification was accomplished, but the search and study went on persistently to make this result possible in one operation. Steam super-heaters were built into the apparatus and waste heat utilized, to heat the process steam to a much greater degree, to stimulate a more active dissociation and combination with carbon in the oil carbonizing cycle. Catalysts were employed, and the gas yield gradually increased with a proportionate reduction of the residual carbon until this line of approach seemed to have been exhausted. A state of equilibrium was reached, where further stimulation of the reaction between steam and carbon in the gas stream could not be accomplished without over-cracking the gas hydrocarbons with counteracting losses in efficiency and more free carbon liberation. Much progress had been made from the earlier forms of apparatus, and the efficiency had been increased to yield more than 40,000 cu.ft., or 220 therms per ton, and the carbon reduced to just over 5 cwt. Improvement in efficiency had more than kept pace with increases in the price of oil, oil costs per therm of gas produced were quite low, and the carbon had been so much reduced as to make auxiliary water gas apparatus for its disposal no longer necessary, its extravagant use as boiler fuel consuming the entire production.

The general use of cracking processes by the oil industry resulted in a residual fuel oil being rendered available for gas manufacture, but this could not be so efficiently used in the then existing apparatus as the crude or topped crude formerly used. Gas yields declined some 10% and residual carbon increased proportionately. Steam decomposition and combination with carbon in the gas stream was reduced, and to maintain the declared calorific value it required further cracking of the oil hydrocarbons to a lower calorific value.

Improvement in production efficiency of oil gas operations had from its inception been primarily a function of decomposing more steam so as to retrieve as blue gas a higher proportion of the carbon of the oil. While progress in this direction had been consistently made, with the change in character of oil available for gas making, a serious setback was encountered, and to recover this lost ground and make any headway towards further improvement in the process required an entirely new view of the principle of making blue gas from oil gas carbon. A radically different type of process was evolved in which previous efforts to decompose steam for combination with carbon entrained in the gas stream were abandoned entirely and oil carbonizing and the utilization of the excess carbon considered as separate and not simultaneous functions.

Further Development—A New Process.

This new process combines apparatus for effectively carbonizing the oil with means for separating the entrained carbon for subsequent use for the formation of blue gas and producer gas. In conditioning the separated carbon for blue gas production, producer gas is formed, and while the producer gas is entirely incidental, its use to reheat the checkerwork for subsequent oil carbonizing very materially increases the efficiency of the process by eliminating the use of oil formerly burned to maintain the operation. The new process comprizes a completely reversible oil carbonizing apparatus with two additional chambers or "filter-producers," one on either side of the oil gas portion of the apparatus. The operation being cyclical, alternate runs are in opposite direction through the set, and the filter-producers alternately function to filter carbon from the oil gas which on subsequent runs is used to make producer gas to reheat the checkerwork and to make blue gas.

After preliminary experimentation with converted apparatus, which demonstrated the practicability of this method, a pilot plant of commercial size was constructed at the works of one of the larger gas undertakings, and which, with changes and alterations, was operated for two years to perfect the cycle and work out the mechanical problems involved. During this period a very wide variety of fuels was successfully used. Following the conclusion of the development period commercial installations were made and have been in regular operation for several years.

Honolulu Plant and Results.

The largest of these commercial plants was completed in Honolulu for the Honolulu Gas Company, Ltd., in 1934, and the results of their operations for the year 1936 are summarized in the following tabulation:

Oil carbonized	11,340	tons
Gas yield	587	million cu.ft.
Calorific value	519	B.Th.U.
Carbon produced	2,743	tons
Gas yield per ton of oil	51,750	cu.ft.
Carbon produced per ton of oil	4·85	cwt.
Therms per ton of oil	417	therms
Gas yield per ton of oil	268	,,
Carbon per ton of oil	81	,,
Steam produced from residual carbon	110	lb. per 1,000 cu.ft.
Gas efficiency	64·2	%
Conversion efficiency	83·7	%

The Honolulu plant during 1936 operated at only 40% of its capacity, and, due to inadequate holder capacity, the average daily operating period, which only amounted to nine hours, was broken by a four-hour mid-day lay-over which very materially interfered with performance.

The oil used at Honolulu during 1936 was a "cracked residuum."

The average analysis of the gas produced was as follows:

	Volume, %	Weight, %
CO_2	3·2	10·5
C_2H_4	1·1	6·4
C_nH_{2n}	2·2	4·6
O_2	0·6	1·4
CO	15·5	32·4
H_2	49·8	7·4
CH_4	22·8	27·2
N_2	4·8	10·1
B.Th.U.	519	
Sp.gr.	0·4638	

The percentage by weight of the constituents is added to the conventional analysis to show the possible range of variation in gravity to meet different conditions. In the Honolulu operations gas of approximately 0·5 gravity had been served for many years; there was therefore no particular advantage in lowering the gravity; and with the new process, air, and not steam, is used for purging and no effort made to exclude residual combustion products from admixture with the gas. The inerts are therefore higher than need be, and while they represent only 8% by volume, they account for more than 20% of the total weight. This, however, compares well with normal coal gas practice.

Coal Gas for Peak Loads.

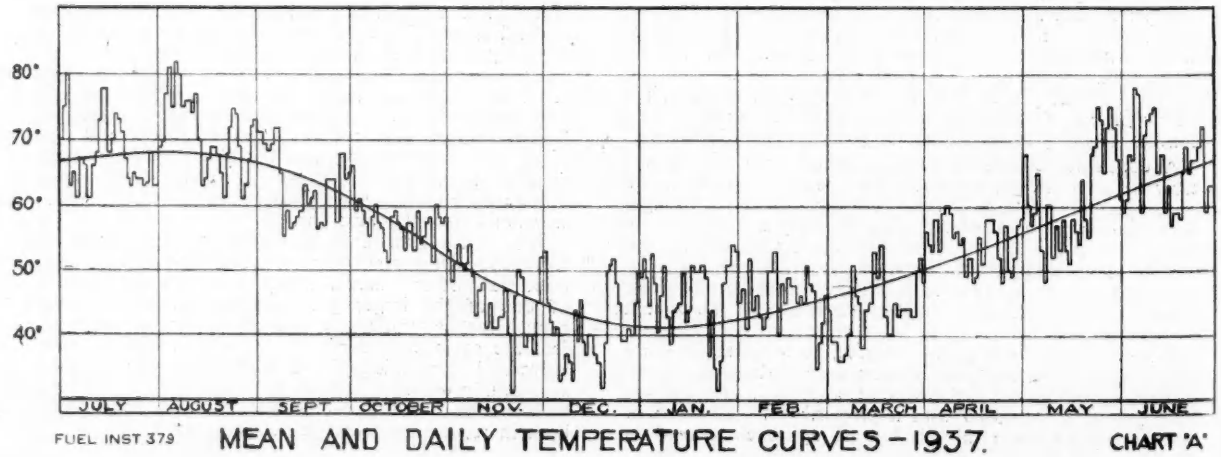
For over a hundred years coal gas has been, and will undoubtedly continue to be, the logical and most economical method of gas manufacture in England, but the inflexibility and high investment cost of coal gas plant makes auxiliary production plant very desirable to meet effectively and efficiently the wide and increasing variations in the load of present-day gas undertakings.

Most gas engineers are quite familiar with the economic advantages of low cost auxiliary plant to relieve their coal gas plant of seasonal peaks, but few have had any appreciation of the fact that oil gas apparatus offers auxiliary plant for peak loads that will exactly duplicate coal gas and has the maximum of flexibility and investment economy.

Temperature Variation and its Effect on Gas Loads.

Because of seasonal variations in temperature the annual "load factor" of gas production plant of most British gas undertakings is of the order of 55%. By load factor is meant the amount of gas made expressed as a percentage of the total capacity of the plant. This seasonal variation due to weather conditions, and which imposes excessive loads for short and intermittent periods, is a matter about which nothing can be done (as has often been jocularly remarked), but a full appreciation of the extent to which weather affects operating costs may lead to a more economic use of equipment to meet this inevitable condition.

It is a subject, too, that is of increasing importance, as each year a greater proportion of the people recognize gas as the ideal fuel, and as more is used for house heating, the seasonal variation becomes wider and the load factor poorer. So much gas is used to-day for heating houses and offices that a close relationship exists between the prevailing temperature and the gas load. Mr. E. G. Stewart, of the Gas Light and Coke Company, has for several years been using a graph which he has prepared for their load and from which he can predict with uncanny accuracy the send-out of gas from the prevailing temperature. Thus, if the temperature could be accurately anticipated the send-out could be predetermined, but unfortunately the weather is not so obliging and varies quite widely from normal or average temperature. Most communities have only two kinds of weather—perfect or unusual—but for the purpose of showing the effect of weather on the gas load we will consider three kinds of weather in London: (1) "Mean," being the average prevailing temperature for the past 30 years; (2) "Normal," being the annual deviations from the average or mean temperature: and (3) "Abnormal," or the wider deviations that occur less frequently—namely, excessive cold spells that are sometimes many years apart. This can best be shown graphically, and chart (A) plots the daily 1 p.m. temperature as recorded at Kew Observatory for 1937. Last year's weather was not abnormal, so this graph shows the first two—"Mean" and "Normal" weather—the smooth curve being the mean or 30-year average temperature, and the irregular curve that crisscrosses the normal line being the daily 1 p.m. temperatures. The third or "Abnormal" kind of weather is not so much an excessive variation from normal as it is of prolonged duration of abnormally low temperatures. One cold day does not affect the send-out of gas to so great an extent as a second consecutive day of the same temperature, while further consecutive days affect it to a still greater extent.



FUEL INST 379 MEAN AND DAILY TEMPERATURE CURVES—1937. CHART 'A'

"Abnormal" weather has therefore been taken as the periods when the temperature has remained at 32° or below for three or more consecutive days. The Air Ministry cites the occurrence of these periods of so-called abnormal weather since 1908 as follows:

	Duration.
1929, Feb. 12 to 17 incl.	6 days
1927, Dec. 17 to 20 incl.	4 ,,
1926, Jan. 14 to 16 incl.	3 ,,
1917, Jan. 28 to 30 incl.	3 ,,
1912, Feb. 3 to 5 incl.	3 ,,
1908, Dec. 28 to 30 incl.	3 ,,

Thus these protracted cold spells have occurred only six times in 30 years for a total of 22 days, or on an average of less than one day per year. The most recent of these periods, in the spring of 1929, is shown graphically on chart (B), on which is correspondingly plotted the send-out curve of one of the London companies to illustrate the effect upon peaks and the close relationship between send-out and temperature. This spell of abnormal weather was not only more severe, the temperature falling as low as 14° F. on February 15, but was of exceptional duration.

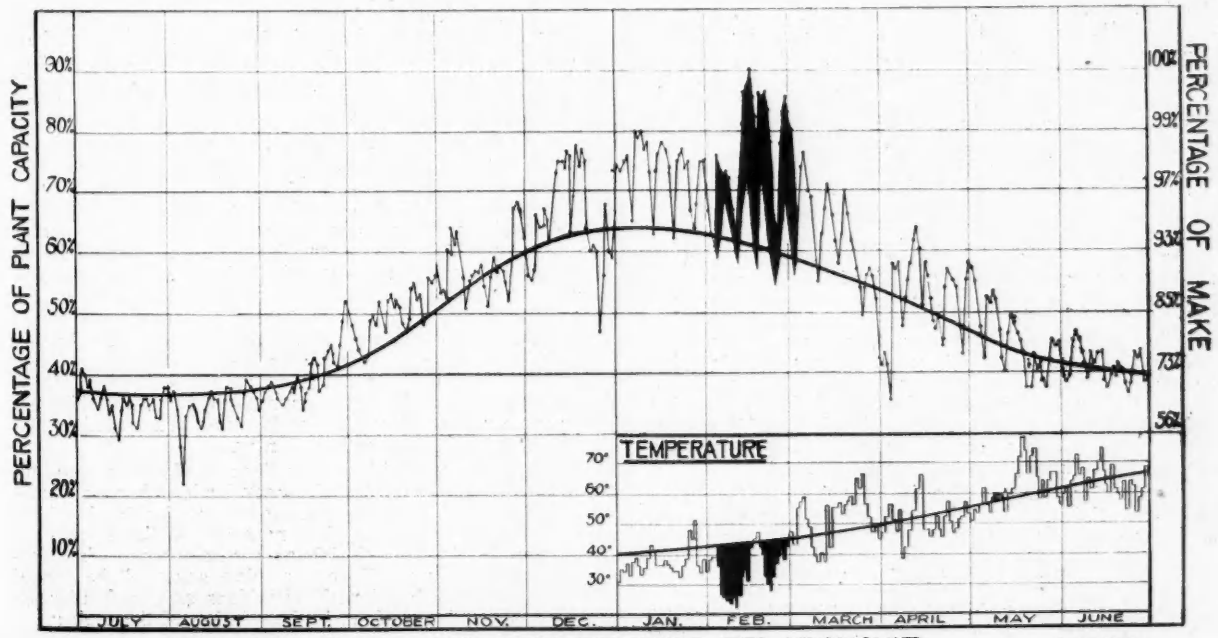
Periods of abnormal weather, equal in severity and duration to the 1929 period (six consecutive days when the temperature failed to exceed 32° F.), are only half as frequent, according to the Air Ministry records, as those of three days' duration. From 1841 to 1937 there have been nine such periods, or an average of just over 10-year intervals.

The increased volume of send-out over normal for this period in 1929 (shaded on the send-out curve) amounted to less than 2% of the annual send-out, while the peak day increased 13·5% over the previous peak in December. Thus more than 13% of the total production capacity (which in many cases is the same proportion of production capital) is merely reserve capacity or insurance against abnormal weather that occurs once in five years and which may increase the send-out (and revenue) by 0·4% per year. The load factor on this 13% of production capacity is therefore only 7·5% during the year when the abnormal weather occurs and 1·5% over the average five-yearly period.

Using the coefficient of relationship between send-out and temperature established by Mr. Stewart, if the mean or average temperature curve is plotted inversely with a scale relative to the effect of temperature drop on send-out, we have substantially a mean send-out curve, and if to this is added, also on a relative scale, the daily deviations from the mean that represent normal weather, the result very closely approximates the actual send-out curve. Chart (B) is, however, shown for another purpose. It represents the actual 1929 send-out (including the abnormal send-out in February and March), and upon which has also been plotted the send-out curve for mean weather. This chart is plotted as a percentage of total production capacity, as marked upon the left-hand scale, and the peak send-out of the period of "abnormal" weather is taken as requiring 90% of the total production capacity, leaving 10% as emergency reserve. The right-hand scale of this graph shows the percentage of total amount of gas made corresponding to the percentages of total plant capacity. Table (C) also includes in columns 1,

PER CENT OF PRODUCTION CAPACITY	1	2	3	4	5	6	7	8
	PER CENT OF TOTAL MAKE			LOAD FACTOR			DAYS IN ACTUAL SERVICE	
	EACH 10%	CUMUL. ↑	CUMUL. ↓	EACH 10%	CUMUL. ↑	CUMUL. ↓	TOTAL	AT CAPACITY
90	0·00	100·00	0·00	0·00	52·75	0·00	00	00
80	0·35	100·00	0·35	1·85	58·60	0·93	18	1
70	1·91	99·65	2·26	10·05	65·65	3·97	92	14
60	4·36	97·74	6·62	23·00	73·60	8·73	154	62
50	7·82	93·38	14·44	41·25	82·10	15·25	219	115
40	11·75	85·56	26·19	61·85	90·15	23·00	260	190
30	17·01	73·84	43·20	89·75	97·30	32·53	365	272
20	18·90	56·80	62·10	99·60	99·85	40·95	365	362
10	18·95	37·90	81·05	100·00	100·00	47·51	365	365
	18·95	18·95	100·00	100·00	100·00	52·75	365	365

FUEL INST. 381. TABLE "C"



FUEL INST. 378. 1929 GAS SEND-OUT-TEMPERATURE RELATIONSHIP BETWEEN PLANT CAPACITY AND MAKE CHART "B"

2, and 3 the percentage of gas made by each increment of plant capacity and cumulative totals, and in columns 4, 5, and 6 corresponding load factor. Column 7 shows the total days that each increment of capacity is actually required, and column 8 the number of days operated at full capacity. This graph and table clearly develop the relationship between plant capacity and gas made, from which it is obvious that only 40% of production capacity is truly base load, operating continuously and producing 73·8% of the total gas made. An additional 25% of capacity is for mean or average seasonal weather variation, and this 65% used for average load produces almost 96% of the total make of gas. Thus more than one-third of the total plant is for normal variations from average, for abnormal and infrequent cold spells, and as reserve, producing only 2·26% of the send-out, or a 4% load factor.

The full significance of this inevitably poor load factor on production plant is appreciated when we reflect upon the increasingly important part that capital expense plays in the total holder cost. With coal-gas plant at full capacity or 100% load factor the capital cost per therm is one-quarter of the total or holder cost. At 60% load factor the capital cost becomes one-third, at 30% one-half of the total, and at 10% load factor capital represents three-fourths of the total cost, or three times the production expense per therm.

Cost of Gas-Making with Varying Load Factors.

Production expense for oil gas at present prices in the London area is 30% more than the production expense for coal gas at 100% load factor, but the capital cost of complete oil-gas plant is only slightly more than half the cost of coal-gas plant, making the holder cost per therm of oil gas less than a halfpenny more than coal gas at 100% load factor. The advantage of coal gas maintains with a decreasing differential at lower load factors until at 50% the coal gas shows only 1% lower holder cost, and at 10% oil gas is 27% cheaper than coal gas, because capital cost represents only one-eighth of the total cost of oil gas at 100% load factor, one-quarter of the total at 40%, and only slightly more than half the total cost at 10% load factor. The relative costs at various loads is shown in tabular form below:

Load Factor, %	Coal Gas.			Oil Gas.			Oil Gas Cost, %
	Production Expense.	Capital Cost.	Holder Cost.	Production Expense.	Capital Cost.	Holder Cost.	
100	2·50	0·79	3·29	3·26	0·43	3·69	12 more
90	2·50	0·88	3·38	3·26	0·48	3·74	10 ,,
80	2·50	0·98	3·48	3·26	0·54	3·80	9 ,,
70	2·50	1·13	3·63	3·26	0·61	3·87	7 ,,
60	2·50	1·32	3·82	3·26	0·71	3·97	4 ,,
50	2·50	1·58	4·08	3·26	0·86	4·12	1 ,,
40	2·50	1·97	4·47	3·26	1·07	4·33	3 less
30	2·50	2·63	5·13	3·26	1·43	4·69	8 ,,
20	2·50	3·94	6·44	3·26	2·54	5·80	10 ,,
10	2·50	7·89	10·39	3·26	4·29	7·55	27 ,,

For the purpose of this comparison, production cost per therm is taken as a constant at all load factors and the cost of maintaining stand-by plant in readiness is not considered. This obviously is purely hypothetical. Actually the latter item has been estimated by competent authority as from £26 to £27 a day for 5 million capacity, which for plant operated at 20% load factor adds a penny per therm to the cost of coal gas as compared with oil-gas plant as stand-by which can be maintained for just a fraction of this amount, but the comparison serves to illustrate the importance of capital charges in total production expense.

As 40% of production plant is operated at an average of less than 10% load factor, the potential economy of employing low cost plant for peak loads can be readily appreciated.

Area Required for Plant.

In many gas undertakings the cost of land is not only a considerable part of capital cost, but obtaining suitable area for expansion is a serious and in some cases critical problem. With oil gas the capacity per acre is three or four times as great as with coal gas, and thus existing plant can be expanded to meet many years of increasing demand, and many areas of less costly land that would be uneconomic or quite impossible as a coal-gas works are entirely suitable as an oil-gas site. Very few of even the larger coal-gas plants attain as much as a million cu.ft. daily capacity per acre, or 43,560 sq.ft. per million per day. The Potrero oil-gas plant in San Francisco has daily capacity of 40 million cu.ft. of 550 B.Th.U. gas on a total area of 9·1 acres, or just under 10,000 sq.ft. per million daily capacity.

Stand-by Plant for Coke Oven Supply.

In addition to the interest that has been shown in the use of oil gas apparatus as peak-load auxiliary to coal gas plant, the use of flexible, low cost plant that will make coal gas from oil is of particular interest to the many gas undertakings that have or may in the near future arrange for a supply of coke oven gas. As emergency stand-by plant, to take up the load quickly and supply a duplicate gas in case of fire, explosion, strikes, or other causes of interruption to the supply of coke oven gas, oil gas plant is ideal. For this duty apparatus of even lower capital cost than for peak load plant is employed. The minimum of investment consistent with the maximum of reliability is the paramount consideration, and while this is obtained at the sacrifice of efficiency, production cost is of almost negligible account for strictly emergency service. If at some future date stand-by plant may be required to deal with peak-load service, very low capital cost plant can be installed initially and later added to to provide efficient apparatus for the changed duty. The characteristics of any of the representative coke oven gases can be reproduced with simple apparatus, requiring the minimum of labour and no great amount of skill or experience to bring into service in a few hours' time.

Availability of Fuel Oil.

A broad and comprehensive view of probable future market conditions and price of raw material is essential to consideration of any type of production equipment by gas undertakings. Such a view may be taken of fuel oil with ample assurance of an abundant future supply at predictable prices—at least as predictable as the future prices of coal. In fact, it is the future price of coal and upon this element alone that the future price of fuel oil must be based. The greater part of all fuel oil used in the world to-day in commerce and industry is for purposes that were formerly and could again be served by coal. The great bulk of fuel oil is directly and continuously in competition with coal, and, while not sold on an equivalent cost per therm, a fairly constant differential representing the contingent advantages and economies inherent in and to the credit of the liquid fuel must be maintained. Any wide departure from this relative price would make it more economical for many users to revert to coal, upsetting the supply and demand factors and forcing the price back into line.

Fuel oil continues to enjoy an important and widening place in world commerce and industry, but demand is not outstripping supply and the price will continue at a stable and reasonable level.

Quite the contrary is true of the lighter fractions—gas oil and diesel oil—in which group the supply is consistently diminishing as a greater proportion of these fractions is cracked for motor fuel and demand for diesel engine use increases enormously each year, not only for motorships but for railway locomotives, lorries for road transportation, and for tractors and industrial machinery.

Many gas undertakings have ignored the economic advantages of auxiliary plant for peak loads rather than compromise with the uniform character of the gas that has been traditional of the British Gas Industry. Ability to produce coal gas with low cost flexible apparatus removes this objection and permits a full and complete study of the capital burden imposed by climatic conditions and application of sound economic principles in the solution of the problem.

(A report of the discussion which followed this Paper will be published in an early issue of the "JOURNAL.")

Bombay Gas Company, Ltd.

The Ordinary General Meeting of The Bombay Gas Company, Ltd., was held at the Offices of the Company, Moorgate Station Chambers, London, on Wednesday, April 27—Mr. A. M. PADDON presiding in the absence of the Chairman of Directors.

The SECRETARY (Mr. E. Comber) read the Notice convening the meeting and also the Reports of the Auditors in Bombay and London.

The Report and Accounts having been taken as read,

The CHAIRMAN said: I am sure you will share with my colleagues and myself our profound regret at the absence of our Chairman, Mr. W. G. Bradshaw. His attention to the affairs of the Company and his care of its interests have been uninterrupted for a great number of years and I think this is the first time since he took the Chair that he has failed to address the General Meeting. I also think you would like the Secretary to convey to him, on your behalf and ours, a letter of sympathy and an expression of hope that he will shortly be able to resume his office as Chairman.

As Mr. Bradshaw is not here it gives me the opportunity of reminding you briefly what this Company owes to him for what he has done in the past. If my recollection is correct, Mr. Bradshaw assumed the Chairmanship of this Company in 1925, or 13 years ago. Shortly afterwards he did me the honour of asking me to join him and my other colleagues, so I have had a consistent opportunity of observing the skill and the care with which he has looked after your interests in the interim.

A few comparative results will appraise you of what he has accomplished in the interests of the Company. In 1925 or 1926, when he became Chairman of the Board, the capital of the Company was £856 per million. The capital raised then was the same as it is now.

In the meantime, the capital employed has fallen from £856 per million to £703 per million, a reduction of nearly 20%, in the capital employed in carrying on the business of the Company. As some of you know, that is a cardinal factor in determining the prosperity of a company because it decides what you must obtain by way of profit in order to pay your dividend and your interest. As the capital falls so that charge becomes lower and the duties of the Directors become less onerous. However, you cannot take a figure like that by itself. You must be assured that the assets of the Company—its works and its property—have been maintained in an efficient and effective condition. Owing to the skill of our Engineer, Mr. Lane, whom we have with us to-day, I can assure you that that requirement has been fulfilled.

Another brief comparison is that our business has increased by nearly 30% in that time and that, associated with the facts that I have already stated, has been responsible for our capital remaining the same all that time.

These facts alone will tell you something of what Mr. Bradshaw has accomplished, but they will not tell you all. About the time Mr. Bradshaw became Chairman we owed £27,000 to our bankers, and a corollary of that was that naturally we had no investments. To-day, however, we have investments and after they have been written down we have, as you will see when I refer to it later, something like £30,000 of invested money as a set-off against our fiduciary obligations in certain parts. In 1925 we had not one penny to set off against these obligations and in my humble judgment, and also in that of the other Directors, it certainly is a great advantage now that instead of owing £27,000 we have something like £27,000 independently invested. That is one of the accomplishments of Mr. Bradshaw. Another thing is that he has caused to be written down with great care a large amount of our plant that no longer serves its purpose. In all such undertakings there is a certain amount of dead wood—apparatus which was useful at the time of installation but which has outlived its usefulness and become an anachronism in the capital account. But that has not been so in our case. It has been written down and written out. For instance, there are a large number of meters which were very useful 50 years ago but they are no good to-day. You cannot even take them out of the shops and they have been written off. These are just a few details of what I might call the commercial and financial policy which Mr. Bradshaw inaugurated when he became Chairman and which he carried into effect, and I think it is only just that I should tell you that.

The Accounts.

With regard to the accounts themselves, there is nothing to excuse and not a great deal to explain. If you will look at the Capital Account you will see that we have only debited to that £1,349 in connexion with an increase in our business of 44 million cu.ft. of gas, or over 8%, because very much of what might legitimately be appropriated to capital account has been borne by the Revenue Account. I know there are one or two gentlemen in front of me who know a good deal about gas—a great deal more than I do—but they know as well as I do that there is a certain line when it becomes difficult to say whether a thing should be more appropriately put to capital than to revenue. The conservative and wise method of dealing with that situation is that when in doubt charge all you legitimately can to Revenue Account. In this case some £3,000 on new mains, instead of going to capital as could quite justifiably be done, has been put to revenue, and although we have sold some 44 million cu.ft. more of gas during the year we have only increased the capital account by this small figure of £1,349. It is obvious, therefore, that the capital per million is going down as it has been during the time I have referred to, and I hope we shall be able to continue that process in the future.

Revenue Account.

Turning to the Revenue Account, there is not a great deal to tell you. On the credit side, the gas sold under different designations has brought in £10,474 more. Our total rentals have brought in £2,629 more, and that is a much more important item than the mere financial definition indicates, because that rental tells you the expansion of the Company's business. The number of new meters and new apparatus put out on the district is the criterion rather than this mere figure. In addition to this, our residual products brought in £2,250 more, and it will be seen that the total increase in receipts on Revenue Account amounts to £15,349. But you are not going to get all that without something being set against it. On the other side we have had to bear the proportionate amounts necessary for extra coal, raw materials, and various other matters. They are all proportionate to the increase in output, and I will not weary you with the details. If they were disproportionate, I would.

Coming to the distribution of gas, you will see that under "Repairs, Maintenance, and Renewal of Mains and Services, Material and Labour," there is an increase of £4,237, of which I have already told you £3,000 has really been carried over from Capital Account. The next item of £18,505 for "Repair and Renewal of Meters, Stoves and Refrigerators" is only £248 more than a year ago, but we have really provided new apparatus to the extent of £5,995 in the aggregate, which will indicate to you the expansion of our business. I do not think there is anything more on that side of the account to which I need draw your attention, but you will see that the profit and loss figure is £1,188 more than it was a year ago.

Now we will go to the Net Revenue Account, and there are some interesting figures there. You will see the appropriations to Reserve Fund and Renewal and Contingency Fund, and then you will see that the depreciation on investments amounts to £2,048. I spoke to you of the amount of these investments just now, but they have been decreased by this amount and written down. As you know, our Chairman, Mr. Bradshaw, is a very eminent banker, and I imagine he applies to these accounts the same methods that bankers apply to theirs. I have always been told—I am not a financial expert myself—that bankers always write down and never write up, and that has been followed here. The cost in the Balance-Sheet of the amount invested is £27,166, and there is an increase in the total cash items of £3,557; but the investments have been subjected to a deduction of £2,000 on account of the fall in the value of the securities, so that really it might read something very like £30,000 unless we had applied that rather salutary process of writing down. The Reserve Fund and Contingency Fund have been augmented by £3,063, and there is the rather important item of "Sundry Tradesmen and other accounts" amounting to £12,247. That has grown by nearly £4,000, but there is a reserve for income-tax of nearly £2,000, and if that was necessary yesterday morning it is more necessary to-day. That is all I have to say on that as a matter of general policy, and I am sure it is one which you will approve.

That brings me to the end of the examination of the accounts and I think you will agree that they are satisfactory. What the prospects for the future are I will leave to Mr. Lane to tell you because he knows a great deal more about that subject than I do. I had a certain Indian experience many years ago, but Mr. Lane has just come over from Bombay and perhaps presently he will give you some idea of what the prospects are. I imagine the fundamental facts in India to-day are very much what they were 50 years ago when I left there—that is to say, there is such a category of what might be called inconsistent and irreconcilable elements that they cancel each other out until the Government at the top is held to be a sort of vital necessity for all of them. I think that is the chief measure of our security, and in particular

in the domestic regard our strength is in the steady way in which our business has been built up to deal with these exceptional circumstances and in the relations established by our staff out there, through Mr. Lane, with the interests with which he has to deal. I think I can say that the Company, through its staff, is *persona grata* with the various elements with which Mr. Lane has to deal, and I see no reason to apprehend that anything worse will happen in the ensuing year than has occurred in the past.

I now beg to move:

> "That the Report of the Directors and the audited Statement of Accounts for the year ended Dec. 31, 1937, presented to the meeting, be and the same are hereby received, approved, and adopted."

Mr. H. H. MACLEOD (Deputy-Chairman) seconded.

No questions were asked on the Report and Accounts and the resolution was carried unanimously.

The CHAIRMAN: I have now to move:

> "That a final dividend for the year ended Dec. 31, 1937, of 4½% (less income-tax at the rate of 3s. 2·3d. in the £) be now declared payable on and after May 10, 1938, making with the interim dividend of 3½% (less income-tax) a dividend of 8% (less income-tax) for the year."

Mr. STANLEY H. JONES seconded.

The resolution was carried unanimously.

The CHAIRMAN moved:

> "That the retiring Director, Mr. Hugh Henderson Macleod, being eligible and offering himself for re-election be hereby re-elected accordingly."

In doing so, he said he had spoken with some diffidence of his own experience in India because Mr. Macleod's experience there was very great and his own was so very remote and so very small. Therefore in having Mr. Macleod on the Board they had somebody who was conversant with the complexity of Indian finance and commerce and who, it could be said without exaggeration, guided the Board in a hundred ways from time to time in the conduct of the business of the Company.

Mr. STANLEY JONES seconded, and the resolution was carried unanimously.

Mr. H. H. MACLEOD said the next resolution which it fell to him to propose was one which he was confident would meet with ready and enthusiastic approval, for it was the re-election of Mr. Paddon to the Board. Mr. Paddon was a most valuable adjunct to the Directorate. They had all seen the brilliant manner in which he had conducted this meeting in the absence of Mr. Bradshaw, whose illness everybody regretted, and he could assure the shareholders that Mr. Paddon had been a tower of strength to the Board. He moved:

> "That the retiring Director, Mr. A. M. Paddon, M.Inst.C.E., being eligible and offering himself for re-election be hereby re-elected accordingly."

Mr. STANLEY H. JONES seconded, and the motion was unanimously carried.

On the motion of Mr. F. R. SMITH, seconded by Mr. H. F. HILLS, Mr. Alfred Morland, F.C.A., and Mr. Frederick John Bradfield, F.C.I.S., were re-appointed Auditors at the same remuneration as heretofore.

The CHAIRMAN, moving a vote of thanks to the General Manager, Secretary, and staff in London and Bombay, remarked that anything he had said in regard to the staff when presenting the Report and Accounts constituted much that should be said in support of this vote of thanks. The excellence of the working results of the Company depended in the first instance on Mr. Lane, their able General Manager in India, who was with them on this occasion, and it would be realized that he carried on his duties in an atmosphere of difficulties somewhat different from those encountered in this country. We had our troubles here but Mr. Lane had particularly complex problems to handle in reconciling the many divergent elements which were always cropping up in India. Mr. Lane had many difficulties to contend with quite apart from his financial and technical problems, and it was to be hoped that he would remain a long time with the Company in the future because the prosperity of the Company had been so largely created by his skill and great ability. With regard to the Secretary, the Directors would not lose him on any account; it would cause them an awful lot of trouble if he were not with them, and from his own personal experience he could speak of the great ability of Mr. Comber. During the many years he had been associated with the Company he had never asked Mr. Comber for a figure but what it was immediately forthcoming either out of his head or out of the books, but generally out of his head. This same efficiency was exhibited by all the other officers and members of the staff and he therefore moved a very hearty vote of thanks to the Manager, Secretary, and staff.

Mr. H. H. MACLEOD seconded.

Mr. ROBERT H. GLEN, in supporting the vote, said he came back from Bombay only a few months ago, and while he was out there he was given permission to visit the works of the Company. As a matter of fact he visited the works on more than one occasion and although one could never say that anything was perfect—even the Company's gas-works were being improved from year to year—he was bound to say that he viewed them with a certain amount of envy when he compared them with some of the other works in the Far East. He had also visited the Company's showrooms and although he had seen them before he was considerably impressed with the developments taking place in that connexion. Then he took the opportunity of strolling about the showrooms by himself unattended and watching the way in which the Company's Indian customers were received, and he could assure the shareholders that the manner in which they were received and dealt with bore out fully all the Chairman had said with regard to the methods which Mr. Lane had instituted, and it was most satisfactory to notice the manner in which the staff, both European and Indian, tried to help the heterogeneous population of which Bombay was composed. On another occasion he had been taken round at night to see the public lighting. That was an official visit, but he had also made one or two inspections on his own account when he was unaccompanied and, frankly, he was bound to say that he knew of no city in England which was better lighted than Bombay. But apart from all the technical perfection which was to be seen in the Company's operations in Bombay there was the spirit which permeated the staff, Indian and European, in the way in which they dealt with the difficult situations which were constantly arising in the Far East. The success of the Company was very largely in the hands of the staff out there, but he could assure the shareholders that the staff fully justified the confidence which the Board placed in them.

The vote of thanks was carried with hearty acclamation.

Mr. W. T. LANE (General Manager and Engineer in Bombay), acknowledging the vote of thanks, said: Allow me to thank you for your invitation to be present at your Annual Meeting to-day. My mind goes back to five years ago, when you very kindly allowed me the same privilege. On that occasion I was able to offer you a few remarks as to your business and conditions then prevailing in Bombay, and I ventured to suggest that you had good reason to be optimistic, always providing trading conditions were allowed to be carried on peacefully. I also assured you that it would not be through any fault of your Executive Staff and your loyal workers in Bombay if your business did not continue to be successful.

As you know, much has happened during the five years' interval which it was not possible for any of us then to foresee. There have been clouds of depression in that space of time, but, on the other hand, there have been brighter and encouraging periods. So with your permission we will omit the times of depression and concentrate on the brighter side which I am glad to say has been in the preponderance, of which your Directors have made full use and for which, if I may say so, full credit is due to them for seizing such opportunities. When I addressed you last the Company was making progress against very many difficulties such as a general depression in trade, &c., including political disturbances. At that time your sales of gas amounted to 466,863,000 cu.ft., and your bills issued totalled some £163,093. The figures your Directors have placed before you to-day under these two headings are, respectively, 565,218,200 cu.ft. and £202,062, so that you will observe that distinct progress has taken place, and I trust will be found satisfactory by you. In addition to this, your works and distribution system in the Island of Bombay have never been in a better state of efficiency than they are now. As well as this, you may have the satisfaction of feeling that you possess a first-class property and plant for your business, which is being run under the guidance of a very experienced and able Board of Directors, who in turn are served by a thoroughly technically qualified and active staff and body of workmen who work on the lines of co-operation. As your representative out in Bombay, I can say with all truthfulness that we are a united family of workers, and I personally am proud of the splendid efforts and support of my staff and workmen, who number some 1,200. We have no water-tight departments, as our policy is to have conferences and to discuss the pros and cons of our daily work. In other words, our working is on the human element side rather than that of hard-bound rules and regulations. With my Indian experience of some 37 years, I am firmly of the opinion such policy is absolutely necessary in India if one is to make a success of a business.

I would now like to invite your attention to the tremendous political changeover that has taken place in the formation of the Government of India and which came into force on April 1, 1937. I allude to the Provincial Autonomy and the separation of Burma. Bombay, with which we are more closely concerned,

was taken over by the Congress Party, who appointed Mr. G. B. Kner as their leader. This gentleman (our Prime Minister) and many of his Ministers are very able and human politicians, and are most sincere in their desire to improve the conditions and standard of living of the people in the Presidency of Bombay. Personally I have confidence in such a Government, and sincerely hope that this new Government will prove successful. I feel sure it will if only they introduce improved methods of Government gradually, and not allow themselves to be imposed upon by trying to make too many changes all at once. Those of us who have spent a considerable portion of our lives in India cannot fail to realize that it is a crying necessity that the standard of living conditions of the large majority of the people of India be raised, and that as soon as possible. This is not an easy matter, and it will take time and cost money when one realizes that the population of India to-day is in the vicinity of 350 millions.

To carry out this badly needed reform very large sums of money will be required. I mention this because it will affect not only this Company but all trading concerns throughout India. The large amount of money required to meet expenditure for such requirements will have to be raised by additional taxation and loans, &c., so that you must be prepared to find an increase under the heading of taxation in the future Reports your Board of Directors will be submitting to you. Increased taxation will undoubtedly make it more difficult to increase the business of this Company, but providing the taxation is equal all round and comparative with competitive businesses, I do not think that you have much to fear. The acting Chairman has, in his lucid and able speech this afternoon, given you a very clear résumé of the Company's business carried out for the year ended Dec. 31, 1937, which has been one of the busiest years so far experienced in the history of this Company. The building boom we have experienced during the past two years has been remarkable and has changed the appearance of the Island of Bombay beyond recognition. I am able to inform you that this state of affairs still exists and is receiving our closest possible attention, but a time must come when such activities will slow down, though that does not mean that the energetic policy of your staff in Bombay will cease trying to obtain new business. I feel it is important that you should know that your Company in Bombay is looked upon with esteem and respect by the citizens of Bombay. We are on good terms with all the important public bodies such as the P.W.D., the Bombay Municipality, the Bombay Port Trust, as well as with our competitors the Bombay Electrical Supply and Tramways Company, and the same applies to our valued private consumers. The reason for this is that we are giving a super service to one and all—in other words, we are co-operating with them all possible.

One other matter I would like to bring to your notice is that India is making rapid progress in the development of industries. We are in close touch with the Director of Industries of the Government of Bombay and offer him any assistance possible, as we believe gas fuel to be absolutely necessary for such purposes in practically any modern and efficient establishment. India is fortunate in having large and rich raw materials and these supplies will in time enable India to be self-supporting to a much greater degree than has been the case in the past.

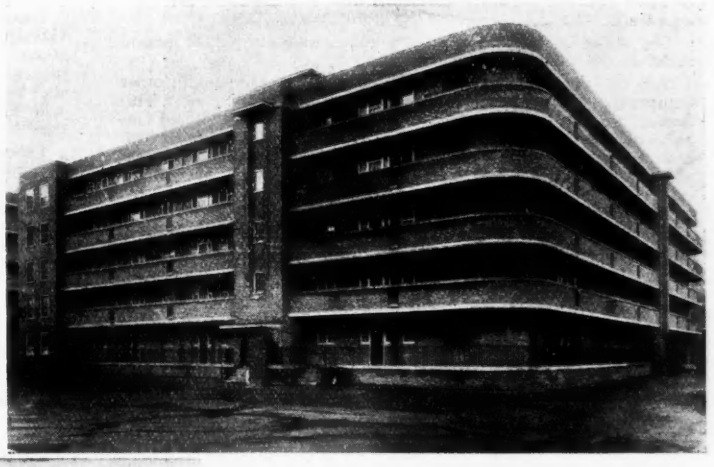
You will have observed that our sales of gas increased by 8·38% over the previous year. Such increase, I feel sure you will appreciate, will necessitate further expenditure on plant and distribution systems, &c., so that it is quite probable that your Directors will be asked to sanction further extension schemes. With these few remarks I would ask you to accept my renewed thanks for allowing me to be with you to-day.

Mr. E. COMBER also expressed his appreciation of the vote of thanks on behalf of the London office and added the fervent wish and hope of both the Bombay and London staffs that Mr. Bradshaw would soon be well enough to resume his duties as Chairman of the Company.

The meeting closed with a vote of thanks to the Chairman.

Multi-Points for Modern Flats

These two impressive pictures of blocks of flats are among many in the possession of Messrs. Ewart & Sons, Ltd., showing the part which this old-established firm is playing in equipping London's modern dwellings with hot water appliances. The flats illustrated are all fitted with a Ewart multi-point heater—the "Advance," and Messrs. Ewarts inform us that they have supplied this heater to nearly every block of flats on the London County Council Estates. It is their proud claim that they were the originators of this system of applying gas to hot water supplies, and that its present-day popularity is due in large measure to their pioneering efforts.



In our report of the Gas Section at the Ideal Home Exhibition ["JOURNAL," April 20] we referred in some detail to Messrs. Ewarts' comprehensive water heating exhibit, and particularly their new "Empire" multi-point—a non-condensing appliance of a capacity of 3½ gallons per minute raised 40° F., fitted with safety cut-out, constant gas governor, and automatic lighter on the flint principle.

South-Western Gas and Water Corporation

Schemes for Amalgamation of Constituent Companies

Further Expansion of Sales

The Fourth Annual General Meeting of the South-Western Gas and Water Corporation, Ltd., was held on April 28 at 9, Clement's Lane, London, E.C.

The REPRESENTATIVE of Messrs. Close Brothers, Ltd., the Secretaries, read the notice convening the meeting and the report of the Auditors.

Mr. R. B. H. OTTLEY (the Chairman) said: Ladies and gentlemen,—The accounts which are now before you cover the period for nine months ended Dec. 31, 1937.

As you will observe from the Directors' Report, Mr. S. J. Ingram resigned his position of Chairman and Technical Director of the Corporation, but, I am happy to say, retained his seat upon the Board.

Consequent upon his retirement the Board was good enough unanimously to invite me to take the Chair of this Corporation, and my Company, the United Kingdom Gas Corporation, to assume the management of the constituent companies. I refer to this matter in more detail a little later in my speech.

Inasmuch as the above changes took effect as from Jan. 1 this year, it was thought convenient, in order to facilitate statistical comparison, that the accounting period of this Company should coincide with that of the United Kingdom Gas Corporation and close as at Dec. 31.

The Investments.

There is little in the accounts to which I need draw your attention. You will observe that investments in subsidiary companies now show an increase of £42,486, which is reflected by an increase of £24,876 in the issued share capital and an increase in the bank overdraft.

The above mainly arises in the acquisition during the period under review of the Wells Gas Light Company.

You will note a certain depreciation in our investments in other companies, which appear in the books at £199,539 8s. 6d. This depreciation arises in the main through our holding in United Gas Industries, a Company whose record for the year has been excellent, which paid us the same interim dividend as last year, and whose Chairman bears a name honoured throughout the Gas Industry. The quotation of its shares has, however, been affected by the general depreciation shown in all Stock Exchange securities.

There remains a net amount for appropriation of £10,579 10s. 1d., out of which the Directors propose to pay a final dividend of 1½%, making, with the interim dividend already paid, a dividend at the rate of 5% per annum for the nine months, and to transfer £3,075 4s. 11d. to reserve account, bringing that account up to £5,000. Our carry-forward will then amount to £1,699, an increase of £1,568 over the figure for last year.

The only other point of interest to which I would draw your attention is an agreement dated Jan. 17, 1938, whereby this Corporation has undertaken to purchase the gas undertaking of the Borough of Glastonbury, subject, of course, to confirmation by the Board of Trade.

If and when this confirmation is granted the acquisition should be of value to us in constituting, as it were, a focal centre for the administration of companies adjacent to that area.

Advantages of Co-operation with U.K. Gas Corporation.

We have moved our central administration office to Bristol, where it works in the capable hands of Mr. F. Allen, B.Sc., under the supervision of, and in closest co-operation with, the central administration of United Kingdom Gas Corporation. I would point out that this Corporation stands to benefit not only by the team of engineering, technical, sales, and publicity experts that the United Kingdom Gas Corporation has been able to gather together at Manchester, but also by the large-scale contracts which that Company has been able to make for the purchase of raw materials. We further have the advantage of its laboratory and drawing office, and the services of the Managing Director, Colonel Carr, as and when required.

We feel that this close association will give us the possibility of accelerating our acquisition programme, and in this connexion shareholders will be interested to know that we propose at an early date to submit to them proposals for increasing the ratio of Preference to Ordinary share capital from 50% to 100%, and to increase the borrowing powers of the Directors by excluding unsecured loans and overdrafts incurred in the ordinary course of business from a limit of 50% of issued capital now imposed upon us. (I might mention that this will bring the South-Western Gas and Water Corporation on to the same basis as the United Kingdom Gas Corporation.)

We have many schemes for the amalgamation of constituent companies with a view to economy in working, and, as was foreshadowed at the last meeting, the Crewkerne undertaking has already absorbed that of Beaminster.

Our primary aim must be to give satisfaction to our consumers, and evidence that we have done so in the past period is, I think, supplied by reason of the fact that we show an increase in gas sales for the 12 months ended 1937 of just over 4% upon the figure of 1936.

Sales for Industrial Purposes.

We are, with the assistance of the industrial experts of United Kingdom Gas Corporation, busily tackling the problem of expansion of sales for industrial purposes, and I am glad to be able to announce that we have more than held our own in the field of street lighting.

Such then is the condition of our Company by the end of 1937, and I shall look forward to being able to show you an even more satisfactory result for 1938, though there are certain factors, such as the cost of labour and price of coal, with which we shall have to reckon in the coming year.

I do not propose to burden you with further remarks on the Gas Industry as a whole. I dealt with these at great length as recently as April 25 in my speech on the occasion of the annual general meeting of the United Kingdom Gas Corporation, but should any shareholder be sufficiently interested, the Secretaries will forward him a verbatim copy of the proceedings of that meeting on request.

I should not like to conclude my remarks without an expression of appreciation of the work done by the local boards of directors and the staffs of the constituent companies, who have worked hard and loyally in the interests of the Corporation.

The report and accounts were unanimously adopted and the dividends recommended were approved.

The retiring Directors, Mr. R. B. H. Ottley, Mr. S. J. Ingram, and Mr. J. M. Whittington, were re-elected.

The Auditors, Messrs. Deloitte, Plender, Griffiths, & Co., were re-appointed, and the proceedings terminated with a hearty vote of thanks to the Chairman and Directors.

Devon Gas Association

An increase in the sales of gas of nearly 2½% for the year 1937, as compared with the preceding twelve months, is reported by the Directors of the Devon Gas Association, Ltd. This has mainly taken place at Lyme Regis, where the Association have had the advantage of a full year's output in connexion with the extension to Charmouth. The supply to Bradninch has made steady progress, and has proved a useful addition to the Association's business. Additional land has been acquired at Cullompton and Buckfastleigh to provide for future extensions, and further showrooms at Ashburton and Kingsbridge have been fitted up. The Association, with the exception of one undertaking, did not increase the price of gas during the year, but at the meeting of shareholders the Chairman, Mr. William Cash, said the Directors felt that the shareholders and consumers, if necessary, should each bear some part of the heavy burden of increased coal prices. The dividend this year has been reduced from 7½% to 7%, "which was recommended as a sort of precautionary measure, though it was a little discouraging to break a seventeen-year record for the former amount." Mr. Cash voiced the pleasure derived by all connected with the Association in the election of Mr. R. J. Rew, their Managing Director, to the Mayoralty of the City of Exeter.

TRADE NOTES

A.R.P. Gas Mask Stores.

A leaflet has been published by Constructors, Ltd., dealing with the storage of gas masks. In view of the importance of Air Raid Precautions work it is felt that the equipment detailed in the leaflet will prove of interest to our readers, to whom the firm will be pleased to supply information.

Masseeley Users Magazine.

We have received a copy of the first issue of the *Masseeley Users Magazine*, which contains several interesting features. The lay-out is particularly attractive and deserving of special mention. It is published by Masson Seeley & Co., Ltd., among whose products is the "Masseeley" Advertising Unit, to whose artistic and commercial merits attention has already been drawn in these columns.

Ashmore, Benson, Pease, & Co., Ltd.

Messrs. Ashmore, Benson, Pease, & Co., Ltd., Stockton-on-Tees, have received an order from Messrs. Colvilles, Ltd., for two waterless Klönne gasholders of 3 million and 1 million cu.ft. capacity. The larger gasholder will be 141 ft. 9 in. diameter and 219 ft. 6 in. high, and the smaller one 99 ft. 9 in. diameter and 148 ft. 3 in. high. Both gasholders are to be installed at the Clyde Iron Works, Tollcross, of Messrs. Colvilles, Ltd., and it is anticipated that erection will commence within the next two months.

A New Synthetic Lining.

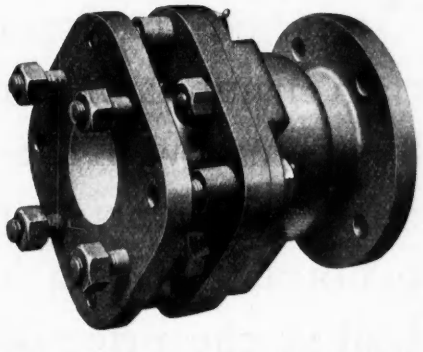
As British Licensees, Messrs. Newton, Chambers, & Co., Ltd., have introduced into this country "Lithcote," a synthetic lining and coating which, we are informed, can be applied easily to any metal and gives a hard, smooth, glass-like, non-chipping, flexible, acid-proof, corrosion-proof, solvent-proof, durable, and sterile surface. Originally developed for lining tanks, the number and variety of other uses since found for "Lithcote" are very great. In America, where it was first introduced, it is used extensively for brewery tanks, petroleum storage, acids, and so on. Later we hope to give details of this new process.

Anglo-American Oil Company's Jubilee.

In connexion with the Jubilee of the Anglo-American Oil Company, Ltd., which is to be celebrated this month, the Company have produced a fine illustrated brochure, constituting a "cavalcade" of the development of motoring and of the oil industry since the Company was established in 1888. It has always been the firm's policy to apply itself to constructive leadership, and to the advancement of quality, and it is pleasing to note in the pages of the brochure a number of directions in which the Company has pioneered changes which have proved to be of far-reaching importance, both to the general public and to the oil industry.

Anti-Vibration Pipe Coupling.

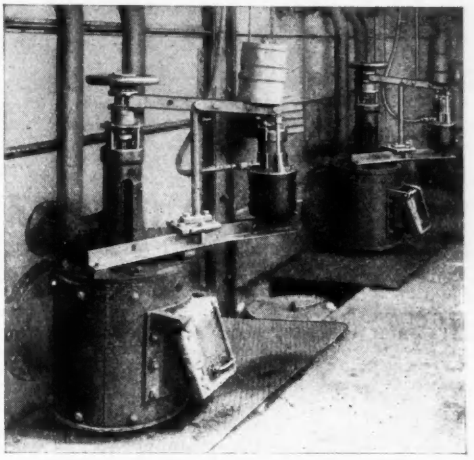
The object of a patent anti-vibration coupling marketed by the Pulsometer Engineering Company, Ltd., 39, Victoria Street, S.W. 1, is to reduce to a minimum the transmission of vibration and noise from the pumping set to the pipe-line. To attain this result, the coupling, of which we give an illustration, is constructed of an



outer and an inner section, between which is interposed a resilient but water-tight jointing cone, to prevent all metallic contact of the outer and inner sections. When these couplings are fitted the section of the coupling connected to the pump branch is not in metallic contact with the section connected to the pipe-line; the pump is thus completely insulated from the remainder of the pipe system. The couplings will also serve as an expansion joint, and will allow for slight misalignment of the pipe connexions.

Thrustors for Gas-Heated Furnaces.

The supply of gas to heat-treatment furnaces is necessarily a matter of fine judgment and must be controlled within close limits if uniformity of product is to be secured. Thermostatic temperature control is, of course, ideal, provided that means can be devised to amplify the small movement of a thermostatic device to such proportions as to provide power to open and close the feed valves. With British Thomson-Houston thrustors the solution of such problems becomes comparatively simple. The illustration shows an installation of thrustor-actuated gas valves. Four main pipelines supply gas to the furnace, each with its own control valve. Pyrometers located at various points inside the furnace register variations of temperature, and such variations are transmitted through the medium of relays to the thrustors which actuate their own valves. By this means a uniform temperature is maintained automatically at any desired setting.



The thrustor itself is a simple and robust electro-hydraulic device designed to exert a smooth, straight-line constant-pressure thrust to any mechanism it is desired to operate. Thrustors are adaptable to remote or local control by any of the usual circuit-opening or circuit-closing devices, such as a push-button, pedal switch, pilot switch, float switch, solenoid, thermostatic relay, &c.

Large-Scale Steel Fabrication.

The organization of Messrs. Marshall, Sons, & Co. (Successors), Ltd., Britannia Iron Works, Gainsborough, includes one of the largest, most up-to-date, and complete boiler manufacturing plants in Great Britain, and in addition to meeting the extensive requirements of their customers for steam boilers, they also undertake the manufacture of a wide range of industrial plant and fabricated steel work. The object of a recently published handsome booklet is to convey to the firm's friends some idea of the class of work they are able to produce. It is, of course, impossible to cover the extensive resources at the firm's disposal, and enquiries are cordially invited.

Asbestos Cement at the Empire Exhibition.

A beautifully-produced brochure reaching us from Turners Asbestos Cement Company, Branch of Turner & Newall, Ltd., is a fitting herald of the approaching Empire Exhibition. This publication describes in word and picture the way in which asbestos cement has played a vital part in the construction of the Exhibition buildings. It is a veritable mine of information upon the structural side and will serve as a guide to exhibitors and others who wish to be informed upon details of the buildings at Bellahouston Park. In the introduction to this handsome publication it is pointed out that while asbestos cement played an important part in roofing the Wembley Exhibition buildings, the extent to which the industry has developed in the intervening years has made possible a far wider application of this ubiquitous material at the Empire Exhibition, Scotland, 1938. The manufacturers say "Asbestos cement is practically everywhere; seen above ground and unseen below; functioning in many instances

The FLAVEL Kitchen Grand MODEL 37

Listed at £11 15s. 0d. including all recent advances and subject to full discounts it is an appliance that will make sales in any Gas Showroom.

THE compactness of the FLAVEL Kitchen Grand is demonstrated in these illustrations, finished in gleaming white porcelain enamel, a plate rack automatically opening with the lid, an exceptionally efficient oven, a trouble-free hotplate with a high speed Grill all at the price of an ordinary Gas Cooker.

in new ways; solving problems with which the architect has been beset." It is clear from the photographs and data given that this statement has every foundation in fact and the visitor who has been fortunate enough to secure a copy of this handsome brochure will find an added interest to his tour of inspection.

"Sentry" Coke-Fired Boilers

Robustly constructed and subjected to a very stringent test before dispatch from the works, "Sentry" coke-fired boilers are claimed to give a continuous hot water supply at all taps with minimum fuel costs. The water jackets of these boilers extend well below the fire, permitting sediment to fall to the coolest part and thus considerably prolonging the life of the boiler. Extra large cleaning doors are fitted to facilitate removal of all deposit, and where water is soft, "Sentry" boilers can be supplied rustless. These boilers have stood the exacting test of many years' service, and their advantages are well known. They rank among the more efficient and reliable boilers of this type. Sizes "Junior" and "AX" have fall-down doors, and sizes "A" to "D" are alike in design and have double-hinged fire doors, exposing the whole or part of the fire as required. Size "AO" has a patent arrangement for lowering the hob and front without removing any loose parts. Sizes 1 to 5 are circular and are capable of supplying unlimited hot water for large households, schools, nursing homes, hotels, &c. In addition to the ordinary plain finish, "Sentry" boilers can be supplied in attractive grey or green mottled porcelain enamelled finishes and also with white enamelled side panels. These boilers are manufactured by the Sentry Boiler Company, Ltd.

Manchester Juniors' Dinner

The 38th Annual Dinner of the Manchester and District Junior Gas Association was held on Saturday, April 9, at the Engineers' Club, Manchester, when nearly 100 members were present. Included among the visitors were Mr. E. Astbury (President of the Manchester District Association of Gas Engineers), Councillor W. P. Jackson, J.P., and Messrs. A. L. Holton, R. H. Clayton, D. M. Henshaw, and A. D. Young.

Mr. ASTBURY proposed the toast of the President. In response, Mr. ALBINSON acknowledged the wholehearted support he had received during his term of office.

The toast of "Kindred Associations" was proposed by Mr. T. CALDWELL. After referring to the various Associations represented, he mentioned that the Manchester Association had the honour of being the first of the Junior Associations.

Mr. HOLTON, responding to the toast, said that the old type of gas engineer was rapidly passing away. There was a greater demand than ever for men who had scientific knowledge, and who were able to solve the main problems confronting the Industry. Results obtained in the research laboratory could not be passed on to men who had not been trained to use them intelligently. As an example, he said there was a dearth of men who thoroughly understood lighting problems. If the Gas Industry was to retain the present lighting load it was essential that efficient technical men should be available.

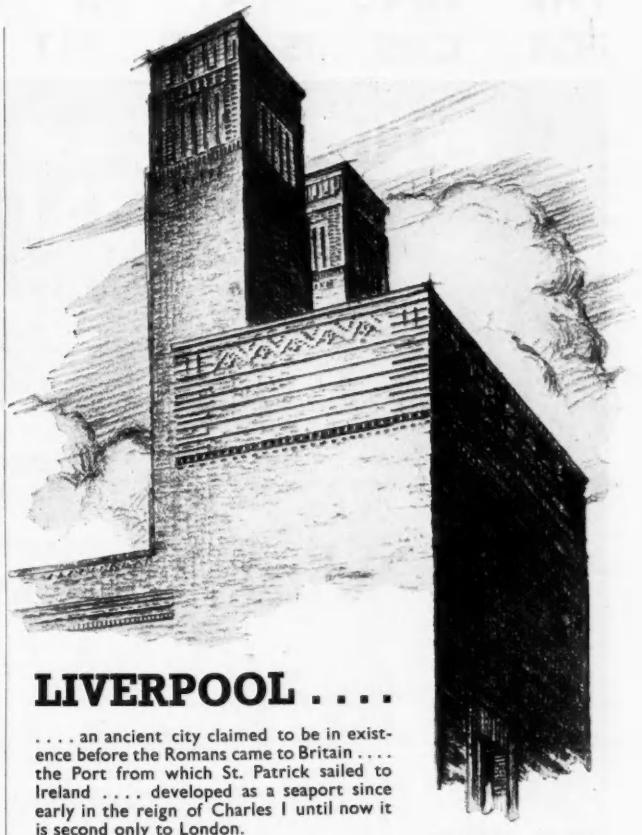
The toast of "Our Guests" was proposed by Mr. H. PLATT, and was responded to by Councillor JACKSON, Mr. CLAYTON, and Mr. HENSHAW.

London Juniors Visit Beckton

That it is patently impossible to inspect the Beckton Works of the Gas Light and Coke Company in a single afternoon was the view expressed on the occasion of a visit by the London and Southern District Junior Gas Association on Saturday, April 30. Nevertheless, the representatives of the Company so arranged the "itinerary" that they contrived to show the visitors the major features of interest at these, the largest gas-works in the world, with the result that a most interesting and enjoyable afternoon was spent by a large number of members.

Among the chief items of interest inspected were, of course, the coke oven plant—an oven being discharged in the presence of the visitors—the "Le Fleuve" coke conveyor system in one of the horizontal retort houses, which was the subject of a recent Paper before the Association by Mr. C. H. Ward, and the enormous Ruths steam accumulator, a photograph of which and brief particulars of its 330-mile road journey from Annan to Beckton were published in the "JOURNAL" for Feb. 2.

The visitors were subsequently entertained at tea by the kind invitation of the Governor and Directors of the Gas Light and Coke Company, when Mr. H. Moys (Engineer-in-Charge of the Beckton Works) extended a cordial welcome to the Association. Having referred to one or two of the points of interest in the Works, he mentioned the system of apprenticeship they had at Beckton, no fewer than eight different trades being covered. The

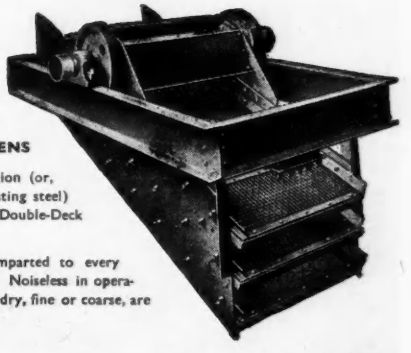


LIVERPOOL . . . .

. . . . an ancient city claimed to be in existence before the Romans came to Britain . . . . the Port from which St. Patrick sailed to Ireland . . . . developed as a seaport since early in the reign of Charles I until now it is second only to London.

The Liverpool Gas Company now carbonises over 356,000 tons of coal per annum and through its 1,310 miles of pipes supplies Liverpool, Bootle, Litherland, Waterloo, Seaforth, Great Crosby, Aintree, Netherton, Sefton, Lunt, Ince, Blundell, Thornton, Little Crosby, parts of Halewood and Speke, Huyton with Roby, Simonswood, Kirkby and part of Whiston and Tarbock, Formby and Freshfield. Four Pegson Screens are employed by the Liverpool Gas Company to grade coke, one of which was supplied direct and the others through Messrs. W. J. Jenkins and Messrs. Dempsters, Elland.

EXHAUST TOWER, MERSEY TUNNEL.



PEGSON-TELSMITH HEAVY DUTY SCREENS

are of all steel construction (or, if desired, corrosion-resisting steel) and built in Single-Deck, Double-Deck and Triple-Deck Models.

Controlled vibration is imparted to every inch of the Screen cloth. Noiseless in operation; all materials, wet or dry, fine or coarse, are uniformly graded.

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PEGSON C.S.5

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boys trained at Beckton frequently obtained important positions elsewhere in the Company.

Mr. R. N. LEFEVRE (President of the Association) voiced the appreciation of the members for the interesting afternoon they had spent and paid tribute to the staff of the Beckton Works in giving up their Saturday afternoon to entertain them. It did the "war lords" from Watson House good to visit Beckton occasionally to make them realize there were other activities in the Gas Light and Coke Company! They could well spend several days looking round Beckton. In thanking Mr. Moys for his remarks, the President asked him to be good enough to convey to the Directors the Association's thanks for a very interesting visit and to accept himself their grateful appreciation of all he and the guides had done to make their visit an enjoyable one.

Western Junior Gas Association

The Annual General Meeting of the Western Junior Gas Association was held at Swindon on Saturday, April 23. A large number of members assembled at the Great Western Railway Company's gas-works and were welcomed by Mr. J. E. Akroyd (Manager), who is President of the Association, and also by Mr. Cook (Locomotive Works Manager). A short inspection of the carbonizing plant was followed by a tour of the carriage assembly, locomotive, and spring shops.

Immediately following the visits the Annual Meeting was held at the Queen's Royal Hotel. The President opened the meeting by welcoming Mr. D. C. Cross (President of the Southern Association of Gas Engineers and Managers).

The minutes of the last Annual Meeting, held at Clevedon, were read, confirmed, and signed.

The Report of the Council for Session 1937-38 having been circulated to members was taken as read and adopted on the proposition of Mr. A. BELL (Exeter), seconded by Mr. F. G. CRAXFORD (Bath).

The accounts were adopted on the proposition of Mr. S. SMITH (Bristol), seconded by Mr. W. BARBER (Stroud).

Officers for the ensuing session were elected as follows:

President.—A. Tran (Bath).

Senior Vice-President.—A. Bell (Exeter).

Junior Vice-President.—S. Smith (Bristol).

Hon. Treasurer.—A. B. Horsfield (Bristol).

Hon. Secretary.—K. L. Clark (Weston-super-Mare).

Hon. Auditors.—J. F. Marlow (Weston-super-Mare) and H. Randall (Stroud).

Members of Council.—S. Hole (Bath), H. D. Sullivan (Plymouth), F. W. Sansom (Exeter), J. W. Denton (Torquay), J. T. Spencer (Weston-super-Mare), T. W. Clapham (Bristol), and, *ex officio*, D. C. Cross and W. A. Howie (President and Secretary respectively of the Southern Association of Gas Engineers and Managers).

The PRESIDENT expressed gratitude to all Officers who continued to assist the Association by their active support.

Mr. D. C. Cross presented the Honorary Members' Second Prize for Papers given during Session 1936-37 to Mr. K. G. Bodiley (Weston-super-Mare) for his Paper, "Some Modern Methods of Street Lighting." It was explained that this Paper had also been awarded the Society of British Gas Industries' Silver Medal for this Association for 1937. In presenting the prize, Mr. Cross remarked on the practical way in which the Association worked. He knew of cases where medals were given for Papers, but he thought that allowing the member to choose his own prize to a certain value was a better scheme. He congratulated Mr. Bodiley on his choice of books.

The first prize for the Session, which had received the S.B.G.I. Silver Medal for 1936, had been sent to Mr. A. Facer (formerly of Bristol), who had recently taken up an appointment at Greenock.

Mr. Akroyd then presented his Presidential Address, which was published in the "JOURNAL" last week.

A vote of thanks was recorded to the President for his Address on the proposition of Mr. TRAN, supported by Mr. D. C. CROSS.

The thanks of the Association to the Manager of the Locomotive Works and his two chief assistants, who had so kindly devoted the afternoon to showing the members some of the plant, was proposed by Mr. J. T. SPENCER and carried with acclamation.

Tea was served in the restaurant of the Hotel by kind invitation of the President, and the thanks of the Association to the President for his hospitality were proposed by Mr. A. BELL (Exeter).

It was announced that Mr. J. B. Cattle, Managing Director, Dartmouth Gas Company, had invited the Association, on behalf of his Company, to hold their Summer Meeting at Dartmouth. The date was fixed for June 18.

Mrs. CALORIE brings you the 1938 'EMPIRE'

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GAS WATER HEATER

Providing an immediate and unlimited supply of scalding hot water to any tap where you want it, and when you want it. A century of manufacturing experience enables us to present the 'Empire' Water Heater, Single or Multi Point, to cover all hot water requirements. The 'Empire' gives better service, easier fixing, and reduced maintenance cost, with neater and cleaner external appearance.

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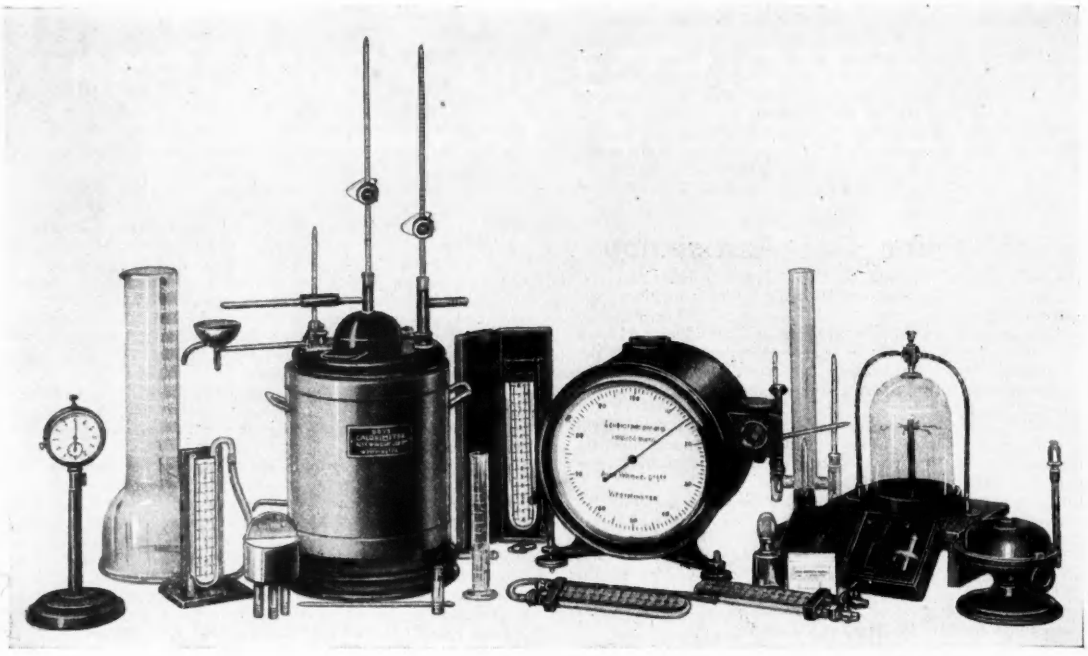

BOYS' CALORIMETER

and equipment for complying with latest requirements of the Gas Referees.

Photograph shows the apparatus needed by most Gas Undertakings working under the Gas Undertakings Acts. Supplementary items include a Meter Proving Measure and Water Weighing Balance, the latter being specified by the Gas Referees for use by Undertakings newly providing equipment under the Acts, in substitution for the measuring vessel.

All materials, internal construction and external finish, are of first-class quality.

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Markets and Manufactures

Current Sales of Gas Products

The London Market

May 2.

Prices of Tar Products generally remain unchanged at the following levels:

Pitch, nominal at about 33s. per ton f.o.b.
Creosote, about 5½d.
Refined tar, 3¾d.
Pure toluole, 2s. 1d. to 2s. 2d.
Pure benzole, 1s. 8d.
95/160 solvent naphtha, 1s. 7d.
90/160 pyridine, 10s. to 11s.
All per gallon naked at makers' works.

The Provinces

May 2.

Crude Gas-Works Tar, 20s. to 25s.

To avoid misunderstanding, it is necessary to state that the above price is not claimed to represent a market value. It is a price worked out from week to week upon a system which has been used for many years as a basis for the fixing of certain contracts for crude tar of varying qualities in different areas.

The average prices of gas-works products during the week were: Pitch—East Coast, 33s. to 34s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 33s. to 34s.* Toluole, naked, North, 1s. 7½d. to 1s. 9d. Coal tar, crude naphtha, in bulk, North, 7¾d. to 8¼d. Solvent naphtha, naked, North, 1s. 4½d. to 1s. 5d. Heavy naphtha, North, 1s. 3d. to 1s. 3½d. Creosote, *ex* works, in bulk, North, liquid and salty, 4⅞d. to 5¼d.; low gravity, 4¼d. to 4⅜d. Heavy oils, in bulk, North, 5d. to 5¼d. Carbolic acid 60's, 3s. to 3s. 3d. Naphthalene, £13 10s. to £16. Salts, 80s. to 85s., bags included. Anthracene, "A" quality, 4½d. to 4¾d. per minimum 40% purely nominal; "B" quality unsalable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Scotland

GLASGOW, *April* 30.

If anything a little more interest is being taken in the various products at the lower prices now being quoted.

Crude gas-works tar.—Actual value remains at 37s. to 38s. per ton *ex* works in bulk.

Pitch.—The shipping season is finished and forward business would be considered at round 26s. to 27s. f.o.b. Glasgow for export. The home price is unchanged at about 25s. to 26s. per ton *ex* works in bulk.

Refined tar.—Prices are fixed at 3¾d. to 4d. per gallon f.o.r. naked in the home market. Export price is easy at 3d. to 3¼d. per gallon in buyers' packages at makers' works.

Creosote oil is well looked after with values unchanged as under: Specification oil, 5d. to 5¼d. per gallon; low gravity, 6¼d. to 6½d. per gallon; neutral oil, 5d. to 5¼d. per gallon; all *ex* works in bulk.

Cresylic acid.—Few orders are being placed and prices are nominal as under: pale, 90/100%, 2s. 6d. to 2s. 8d. per gallon. dark, 97/99%, 1s. 9d. to 2s. per gallon; and pale, 90/100%, 2s. 6d. to 2s. 8d. per gallon; all according to quality, *ex* works in buyers' packages.

Crude naphtha is now called 5½d. to 6d. per gallon *ex* works in bulk, according to quality.

Solvent naphtha is not too active with 90/160 grade at 1s. 4d. to 1s. 4½d. per gallon, and 90/190 heavy naphtha is 1s. 1d. to 1s. 1½d. per gallon.

Motor benzole is unchanged at 1s. 4d. to 1s. 4½d. per gallon.

Pyridine.—90/160 grade is 10s. 6d. to 11s. 6d. per gallon, and 90/140 grade 11s. 6d. to 12s. 6d. per gallon.

Benzole Prices

These are considered to be the market prices for benzole at the present time:

	s.	d.		s.	d.	
Crude benzole..	0	10	to	0	10½	per gall. at works
Motor „ ..	1	3½	„	1	4	„ „ „
90% „ ..	1	4½	„	1	5	„ „ „
Pure „ ..	1	8½	„	1	9	„ „ „

Contracts Advertised To-Day

Coal.
Birkenhead Corporation. [p. 330.]
Carlisle Gas Undertaking. [p. 329.]
Goole Gas Department. [p. 329.]

Foundation Work.
Southport Gas Department. [p. 330.]
Workington Gas Department. [p. 329.]

Gasholder, Spiral Guided.
Loughborough Gas Department. [p. 330.]

Steam Raising Plant.
Wallasey Gas Department. [p. 330.]

Overseas Opportunities

Gas Meters

H.M. Trade Commissioner at Johannesburg reports that the Johannesburg City Council is calling for tenders, to be presented in that city by May 18, 1938, for the supply of 150 prepayment and 1,512 ordinary gas meters. (Ref. T.Y. 21042/38.)

Tenders Accepted

The tender of West's Gas Improvement Company, Ltd., has been accepted by the Darlington Corporation for the re-setting of two beds of retorts at the gas-works.

The Middlesbrough Town Council has accepted the tender of Messrs. Cochranes, Ltd., and Messrs. J. & R. Richie, Ltd., both of Middlesbrough, for the supply of gas pipes.

Dividend Announcements

Montevideo Gas and Dry Dock Company, Ltd.

At the Ordinary General Meeting of the Montevideo Gas and Dry Dock Company, Ltd., to be held on May 24, the Directors will recommend payment of a final dividend of 4½%, free of income-tax, 3% of which is payable on June 1, 1938, and 1½% on Dec. 1, 1938, making (with the interim dividend of 1½% paid Dec. 1, 1937) 6% free of tax for the year ended Dec. 31, 1937.

PROTECT WITH

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a bituminous paint producing a pleasant satin black finish with highly waterproof and anti-corrosive properties.

Protects steel-work which is continuously or periodically immersed in water. Does not become brittle on prolonged atmospheric exposure. METROTECT flows freely under the brush and can be applied quickly and without effort even in cold weather.

Prices and further particulars from—

SOUTH METROPOLITAN GAS CO.

PRODUCTS DEPARTMENT,
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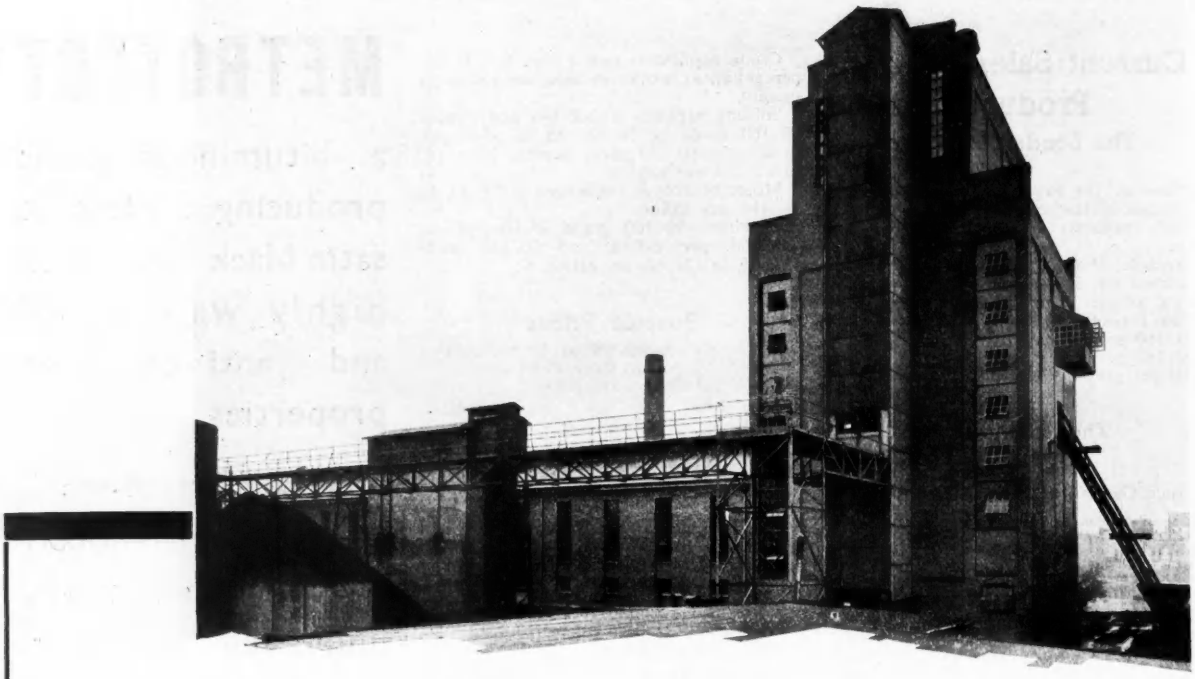

"... New carbonizing plant of the most modern description ..."

AT SVENDBORG, DENMARK

The installation of Glover-West continuous vertical retorts installed for the Svendborg Municipality has given results entirely fulfilling expectations. An 8-retort unit served by an automatic skip-hoist, waste-heat boiler, and coke grading unit, it is an ideal plant for a progressive works with a 70-millions annual demand. And as in the case of many other prominent summer resorts using town gas produced in Glover-West verticals, local amenities have received due consideration in the architectural treatment of the building.

Carbonizing plants of West manufacture to the total of 422 have been built or are now on order, distributed over 24 countries.

THE SOCIETY OF BRITISH GAS INDUSTRIES · 1905 ·

GLOVER-WEST VERTICALS

GLOVER-WEST VERTICAL RETORTS • WESTVERTICAL CARBONIZING CHAMBERS

WEST'S GAS IMPROVEMENT CO. LTD.,

MANCHESTER: Albion Ironworks, Miles Platting ■ LONDON: Columbia House, Aldwych, W.C. 2

GAS STOCKS AND SHARES

Markets quickly recovered from the Budget shock, and although prices were marked down on Wednesday last there was no serious amount of selling, with the result that quotations immediately reverted to their former levels. Gilt-edged stocks were strong, and the closing prices indicate that the increased income-tax has been practically disregarded. Home rails weakened owing to the disappointing Easter traffic returns. Industrials generally remained quiet though prices kept fairly firm. Considerable activity occurred at one time in the mining section, but prices did not hold and the market closed dull. It is obvious that the Budget proposals have been accepted by the City with equanimity, and were it not for the unsettled conditions on Wall Street the recovery here would have continued last week.

Business in the Gas market was quiet and prices closed with few changes. In the Official List, apart from some *ex div.* markings, only three quotations were altered—viz., Colonial 8% preference which improved 6d. to 24s., and Northampton 5% with a gain of 2, but Imperial Continental failed to hold the substantial increase of 18 points recorded a week ago and closed 3 lower at 132½. At the Provincial Exchange, Newcastle units hardened 6d. to 23s. 6d., while in the Supplementary List the only change of note was the sharp drop of 17½ points in the nominal quotation of Peterborough ordinary.

The accounts of the Severn Valley Gas Corporation for the year ended March 31 show a net revenue balance, after providing for interest and taxation, of £47,523 against £39,897 for 1936-37. The Directors recommend a final dividend of 2¾% on the ordinary shares, making 5½% for the year as compared with 5¼% the previous year, while the dividend on the deferred shares is increased from 5½% to 6%. The balance forward is £10,056 as against £8,072 brought in. A parcel of 2,000 ordinary shares is on offer at 23s. 3d. to give a yield of £4 14s. 7d.%.

Official Quotations on the London Stock Exchange

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Apl. 29.	Rise or Fall on Week.
1,767,439	Mar. 7	8	8	Alliance & Dublin Ord. ...	140—150	...
374,000	Dec. 13	4	4	Do. 4 p.c. Deb. ...	95—100	...
558,190	Nov. 15	5	5	Asscd. Gas & Water U'd'ts Ord.	18/—20/-	...
500,000	,,	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	19/—21/-	...
216,041	,,	—	§-/4	Do. 4 p.c. Red. Cum. Pref.	19/—20/-	...
278,590	,,	§-/2⅝	4	Do. 4 p.c. Irred. Cum. Pref.	17/—19/-	...
500,000	Mar. 7	3½	3½	Do. 3½ p.c. Red. Deb. ...	94—99	...
558,890	Feb. 21	7	7	Barnet Ord. 7 p.c.	158—163	...
300,000	Apl. 4	1/4⅛	1/9⅔	Bombay, Ltd.	25/—28/-	...
179,915	Feb. 21	9½	9½	Bournemouth sliding scale ...	195—205	...
590,407	,,	7	7	Do. 7 p.c. max. ...	157—162	...
493,960	,,	6	6	Do. 6 p.c. Pref. ...	132—137	...
50,000	Dec. 13	3	3	Do. 3 p.c. Deb. ...	78—83	...
262,025	,,	4	4	Do. 4 p.c. Deb. ...	98—103	...
335,000	,,	5	5	Do. 5 p.c. Deb. ...	115—120	...
357,900	Feb. 21	7½	7½	Brighton, &c., 6 p.c. Con. ...	145—150	...
649,955	,,	6⅔	6⅔	Do. 5 p.c. Con. ...	128—133	...
205,500	,,	6	6	Do. 6 p.c. 'B' Pref.	125—130	...
835,000	Mar. 7	7	8	British Ord.	138—143	...
100,000	Dec. 13	7	7	Do. 7 p.c. Pref.	142—147	...
350,000	,,	5½	5½	Do. 5½ p.c. 'B' Cum. Pref.	110—115	...
120,000	,,	4	4	Do. 4 p.c. Red. Deb. ...	95—100	...
450,000	,	5	5	Do. 5 p.c. Red. Deb. ...	102—107	...
450,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—100	...
100,000	22 May'33	6	4	Cape Town, Ltd.	1¼—2¼	...
100,000	6 Nov.'33	4½	4½	Do. 4½ p.c. Pref. ...	1¼—3½	...
150,000	Dec. 13	4½	4½	Do. 4½ p.c. Deb. ...	65—75	...
626,860	Feb. 7	6	6	Cardiff Con. Ord.	120—125	...
237,860	Dec. 13	5	5	Do. 5 p.c. Red. Deb.	106—111	...
98,936	Mar. 21	2/-	2/-	Colombo Ord....	1⅞—1⅞	...
24,510	,,	1/4⅛	1/4⅛	Do. 7 p.c. Pref.	23/—25/-	...
739,453	Mar. 21	-/11·48	-/11·48	Colonial Gas Assn. Ltd. Ord.	16/6—18/6	...
296,144	,,	1/3·30	1/3·30	Do. 8 p.c. Pref.	23/—25/-	+1/6
1,775,005	Feb. 7	5	5	Commercial Ord.	83—88	...
620,000	Nov. 29	3	3	Do. 3 p.c. Deb. ...	73—78	...
286,344	Feb. 7	5	5	Do. 5 p.c. Deb. ...	113—118	...
807,560	Feb. 21	7	7	Croydon sliding scale... ...	137—142	...
644,590	,,	5	5	Do max. div.	107—112	...
620,385	Dec. 13	5	5	Do. 5 p.c. Deb.	115—120	...
239,000	Feb. 7	5	5	East Hull Ord. 5 p.c.... ...	96—101	...
185,355	Feb. 21	6	6	East Surrey Ord. 5 p.c. ...	118—123	...
176,211	Dec. 13	5	5	Do. 5 p.c. Deb. ...	112—117	...
250,000	Nov. 15	7	4	Gas Consolidation Ord. ...	19/—21/-	...
250,000	,,	4	4	Do. 4 p.c. Red. Cum. Pref.	18/—20/-	...
19,223,324	Feb. 7	5⅔	5⅔	Gas Light & Coke Ord. ...	23/3—24/3a	...
2,600,000	,,	3½	3½	Do. 3½ p.c. max. ...	80—83	—1
4,477,106	,,	4	4	Do. 4 p.c. Con. Pref.	99—102	...
2,993,000	Jan. 17	...	3½	Do. 3½ p.c. Red. Pref.	100½—102½	...
8,602,497	Nov. 29	3	3	Do. 3 p.c. Con. Deb.	78—81	...
3,642,770	,,	5	5	Do. 5 p.c. Red. Deb.	112—115	...
3,500,000	,,	4½	4½	Do. 4½ p.c. Red. Deb.	110—113	...
700,000	Mar. 7	3½	3½	Do. 3½ p.c. Red. Deb.	97—100	...
270,466	Feb. 21	6	6	Harrogate New Cons. ...	118—123	...
157,500	Mar. 21	1/2⅛	1/‡	Hong Kong and China Ord	⅝—1	...
213,200	Feb. 7	6	6	Hornsey Con. 3½ p.c. ...	105—115	...
5,600,000	Nov. 1	12	8	Imperial Continental Cap. ...	130—135	—3
223,130	Jan. 17	3½	3½	Do. 3½ p.c. Red. Deb. ...	88—93	...
285,242	Feb. 21	8½	8½	Lea Bridge 5 p.c. Ord. ...	167—172	...
11,751	Feb. 21	8	10	Maidstone 5 p.c. Cap.... ...	175—185	...
63,480	Dec. 13	3	3	Do. 3 p.c. Deb. ...	70—75	...
75,000	Nov. 29	†10	†10	Malta & Mediterranean ...	142—147	...
392,000	Apl. 1	5½	5½	Metropolitan (of Melbourne) 5½ p.c. Red. Deb.	99—102	...

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Apl. 29.	Rise or Fall on Week.
231,977	Feb. 21	5	5	M.S. Utility 'C' Cons. ...	99—104	...
968,658	,,	4	4	Do. 4 p.c. Cons. Pref.	95—100	...
360,075	Dec. 13	4	4	M.S. Utility 4 p.c. Deb. ...	97—102	...
148,955	,,	5	5	Do. 5 p.c. Deb. ...	113—118	...
675,000	Nov. 15	†9	†6	Montevideo, Ltd.	73—78	...
250,000	Mar. 7	7½	7½	North Middlesex 6 p.c. Con.	145—150	...
396,160	Feb. 7	5	5	Northampton 5 p.c. max. ...	107—112	+2
300,000	Apl. 25	†9	†7	Oriental, Ltd.	150—155*	—3
468,537	Dec. 13	8	8	Plymouth & Stonehouse 5 p.c.	154—159	...
621,667	Feb. 7	8⅓	8⅓	Portsmouth & Gosport Cons.	160—165	...
241,446	,,	5	5	Do. 5 p.c. max. ...	102—107	...
73,350	,,	5	5	Do. 5 p.c. Pref. ...	108—113	...
247,966	Dec. 13	4	4	Primitiva 4 p.c. Cons. Deb. ...	98—103	...
625,959	Jan. 17	4	4	Do. 4 p.c. Red. Deb. ...	95—100	...
15,000	Mar. 21	6	6	San Paulo 6 p.c. Cum. Pref. ...	8½—9½	...
441,275	Apl. 25	1/1½	1/1½	Severn Val. Gas Cor. Ld. Ord.	20/6—22/6*	—/6
460,810	Mar. 21	-/10½	-/10½	,, ,, 4½ p.c. Cum. Pref.	19/6—21/6	...
133,201	Feb. 7	8½	5	Shrewsbury 5 p.c. Ord. ...	128—133	...
9,000	June 7	4	4	South African Ord.	3¾—4¾	...
1,371,752	Apl. 25	1/2⅔	1/2⅔	South East'n Gas Cn. Ld. Ord.	21/6—23/6*	—/6
871,636	Mar. 7	-/10⅝	-/10⅝	Do. 4½ p.c. Red. Cum. Pref.	20/—22/-	...
498,818	,,	4	4	Do. 4 p.c. Cum. Pref. ...	18/—20/-	...
450,000	Feb. 7	4	4	Do. 4 p.c. Deb.	100—103	...
150,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—98	...
6,709,895	Feb. 7	6	5	South Met. Or.d.	104—107	...
1,135,812	,,	6	6	Do. p.c. Irred. Pf. ...	130—135	...
850,000	,,	4	4	Do. 4 p.c. rred. Pf. ...	97—100	...
1,895,445	Dec. 13	3	3	Do. 3 pc. IDeb. ...	78—81	...
1,000,000	Jan. 17	5	5	Do. 5 p.c. Red. Deb....	109—112	...
1,543,795	Feb. 7	6	6	South Suburban Ord. 5 p.c....	118—123	...
512,825	,,	5	5	Do. 5 p.c. Pref....	110—115	...
500,000	,,	4	4	Do. 4 p.c. Pref....	95—100	...
250,000	,,	§18/9	3½	Do. 3½ p.c. Red. Pref.	98—101	...
888,587	Dec. 13	5	5	Do. 5 p.c. Deb....	115—120	...
250,000	,,	4	4	Do. 4 p.c. Deb....	97—100	...
200,000	Sept. 20	...	3½	Do. 3½ p.c. Red. Deb.	94—99	...
427,859	Apl. 25	1/2⅔	9⅔	S. Western Gas & Water Ord.	17/6—19/6*	—1/—
160,523	,,	-/10⅝	-/10⅝	Do. 4½ p.c. Red. Cum. Pf.	19/—21/-*	—/6
110,000	Dec. 13	4	4	Do. 4 p.c. Red. Deb. ...	97—102	...
750,541	Feb. 7	5	5½	Southampton Ord. 5 p.c. ...	109—114	...
148,836	Dec. 13	4	4	Do. 4 p.c. Deb.	96—101	...
350,000	Feb. 7	5½	5½	Swansea 5½ p.c. Red. Pref. ...	108—113	...
94,000	Jan. 3	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—100	...
1,076,490	Feb. 7	6⅔	6⅔	Tottenham and District Ord.	126—131	...
409,835	,,	5½	5½	Do. 5½ p.c. Pref....	119—124	...
62,235	,,	5	5	Do. 5 p.c. Pref....	108—113	...
371,850	Dec. 13	4	4	Do. 4 p.c. Deb....	97—102	...
85,701	Apl. 25	6	6	Tuscan 6 p.c. Red. Deb.	95—100*	—1
888,629	Apl. 4	4	6	U. Kingdom Gas Cor. Ord....	18/6—20/6	...
937,743	Nov. 15	4½	4½	Do. 4½ p.c. Ist Cum. Pref.	19/6—21/6	...
500,000	,,	...	-/1·15	Do. 4 p.c. Ist Red. Cum. Pf.	19/—21/-	...
745,263	Dec. 13	4½	4½	Do. 4½ p.c. 2nd Non-Cum.Pf.	16/6—18/6	...
1,000,000	Mar. 7	3½	3½	Do. 3½ p.c. Red. Deb. ...	96—99	...
373,939	Feb. 7	7	7	Uxbridge, &c., 5 p.c.	133—138	...
133,010	,,	5	5	Do. 5 p.c. Pref. ...	108—113	...
1,371,138	Feb. 7	7	7	Wandsworth Consolidated ...	137—142	...
2,525,768	,,	4	4	Do. 4 p.c. Pref. ...	96—101	...
1,343,964	Dec. 13	5	5	Do. 5 p.c. Deb. ...	116—121	...
383,745	,,	4	4	Do. 4 p.c. Deb. ...	98—103	...
558,342	Feb. 7	7	7	Watford and St. Albans Ord.	135—140	...
200,000	,	5	5	Do. 5 p.c. Pref. ...	110—115	...
200,000	,,	5½	5½	Do. 5½ p.c Pref. ...	120—125	...
200,000	Nov. 29	4	4	Do. 4 p.c. Red. Deb.	97—102	...
100,000	,,	3½	3½	Do. 3½ p.c. Red. Deb.	95—100	...

a.—The quotation is per £1 of stock. * Ex. div. † Paid free of income-tax ‡ For year. § Actual.

Supplementary List and Provincial Exchanges overleaf.

STOCK AND SHARE LIST—Cont.

Supplementary List, not Officially Quoted, London

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Apl. 29.	Rise or Fall on Week.
202,152	Mar. 21	5	5	Ascot Ord.	103—108	...
128,182	Dec. 13	5	5	Do. 5 p.c. Pref.	108—113	...
31,035	Mar. 21	...	-/4½	Associated Utilities 4 p.c. Pref.	16/—18/–	...
100,000	Dec. 13	...	3½	Do. 3½ p.c. Red. Deb....	95—100	...
17,000	Feb. 21	8	8	Bognor Orig. Ord. 'A' ...	155—165	...
62,210	,,	8	8	Do. New Addl. 'A' ...	155—165	...
87,160	,,	7	7	Do. New 7 p.c. max. ...	152—157	...
37,440	Feb. 7	10	10	Cam. Univ. & Town10 p.c. max.	190—200	...
125,970	,,	7	7	Do. 7 p.c. max.	135—140	...
39,025	,,	5	5	Do. 5 p.c. max.	97—102	...
96,410	Feb. 7	4½	4½	Cardiff 4½ p.c. Pref.	95—100	...
150,000	Feb. 21	4	4	Croydon 4 p.c. Pref.	95—100	...
130,000	Dec. 13	4	4	Do. 4 p.c. Deb.	97—102	...
65,000	Mar. 7	7½	8½	Eastbourne 'A' 5 p.c. ...	155—160	...
198,000	,,	6	7	Do. 'B' 3½ p.c.	126—131	...
112,312	,,	5	5	Do. 5 p.c. Pref.	107—112	...
130,000	Dec. 13	5	5	Do. 5 p.c. Deb.	113—118	...
24,000	Feb. 21	8½	8½	Great Yarmouth 8½ p.c. max.	43—48	...
59,400	,,	7½	7½	Do. 7½ p.c. max.	33—38	...
51,160	Dec. 13	5½	5½	Do. 5½ p.c. Deb.	120—125	...
152,600	Feb. 21	8	9	Guildford Cons.	167—172	...
54,055	,,	5	5	Do. 5 p.c. Pref.	108—113	...
68,250	Dec. 13	5	5	Do. 5 p.c. Deb.	112—117	...
156,600	Feb. 21	7½	7½	Hampton Court Cons. ...	140—150	–2
80,000	Feb. 21	4	4	Lea Bridge 4 p.c. Pref ...	94—99	...
60,000	,,	6	6	Do. 6 p.c. Pref. ...	123—128	...
94,876	Dec. 13	4	4	Do. 4 p.c. Deb. ...	97—100	...
73,620	Mar. 7	8¾	8¾	Luton Cons. 'A'	160—165	...
107,960	Mar. 21	4	5½	Mid Kent Ord.	8¾—9¾	...
230,940	Feb. 7	10	10	Oxford & District Ord. ...	200—205	–2
47,112	,,	5	5	Do. 5 p.c. Pref.	101—111	...
50,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	108—113	...
126,193	Nov. 15	7½	7½	Peterborough Ord.	138—148	–17½
64,990	Mar. 7	6½	7½	Redditch Ord....	122—132	...
166,850	Feb. 7	8	8	Romford Ord....	148—153	...
60,000	,,	4	4	Do. 4 p.c. Pref.	97—100	...
44,000	Mar. 21	5	5	Do. 5 p.c. Deb.	111—116	...
25,570	Feb. 7	5½	5½	Rugby 5½ p.c. Pref.	123—128	...
25,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	103—108	...
42,750	Dec. 13	5½	5½	Do. 5½ p.c. Deb.	120—125	...
10,950	Feb. 21	8	8	Ryde Ord.	140—150	...
270,086	Mar. 21	7	7	Slough Ord.	128—133	...
21,000	Dec. 13	5	5	Do. 5 p.c. Deb.	110—115	...
28,872	Nov. 1	5½	5½	S. Midland Gas Cpn. Ltd. Ord.	19/—21/–	...
28,866	Mar. 7	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	18/6—20/6	...
137,730	Feb. 21	7	7	Southgate & Dist. 7 p.c. max.	135—140	...
62,500	,,	5	5	Do. 5 p.c. Pref.	110—115	...
117,228	Feb. 7	5	7	Swindon Cons.	104—109	...
60,425	Dec. 13	5	5	Do. 5 p.c. Deb.	110—115	...
64,380	Dec. 13	5	5	Torquay and Paignton 5 p.c. Pf.	108—113	...
33,858	Nov. 15	...	-/2·70b	United Kingdom Gas Corpn. 4½ p.c. 1st Cum. Pref. ...	18/—20/–	...
130,000	Feb. 7	5	8	Wakefield Ord.	118—123	...
81,650	,,	5	5	Do. 5 p.c. max.	101—106	...
82,000	Feb. 21	6	6	Weymouth Ord.	105—110	...
98,384	Feb. 7	6	6	Wolverhampton 6 p.c. Pref....	118—123	...
160,000	Dec. 13	5½	5½	Do. 5½ p.c. Rd. Db.	107—112	...
90,000	Dec. 13	5	5	York 5 p.c. Red. Deb.... ...	104—109	...
133,640	Feb. 21	6½	6½	Yorktown (Cam.) 5 p.c. Cons.	126—131	...
120,000	,,	5	5	Do. 5 p.c. Pref.	106—111	...
35,000	Dec. 13	5½	5½	Do. 5½ p.c. Deb.	121—126	...

BRISTOL EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, Apl. 29.	Rise or Fall on Week.
347,756	Feb. 7	5	6	Bath Cons.	120—122	...
1,667,250	Feb. 7	5	5	Bristol, 5 p.c. max.	115—117	...
120,420	Dec. 13	4	4	Do. 1st 4 p.c. Deb. ...	100—102	...
217,870	,,	4	4	Do. 2nd 4 p.c. Deb. ...	100—102	...
328,790	,,	5	5	Do. 5 p.c. Deb.	119—122	...
274,000	Feb. 21	5	5	Newport (Mon.) 5 p.c. max....	99—101	...
13,200	Mar. 21	7	8⅝	Pontyp'l Gas & W. 10 p.c. 'A'	12½—13½	...
13,600	,,	5	6	Do. 7 p.c. 'B'	11½—12½	...
40,000	,,	5	6	Do. 7 p.c. 'C'	11½—12½	...
140,778	Feb. 7	5	5	Weston-super-Mare Cons. ...	110—112	...
64,338	Jan. 3	4	4	Do. 4 p.c. Deb.	94½—96½	...
33,340	,,	7½	7½	Do. 7½ p.c. Deb.	154—157	...

LIVERPOOL EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, Apl. 29.	Rise or Fall on Week.
157,150	Feb. 7	5	6½	Chester 5 p.c. Ord.	103½—107½	...
92,500	Dec. 13	4	4	Do. 4 p.c. Pref.	96—100	...
36,430	,,	3½	3½	Do. 3½ p.c. Deb.... ...	88—91	...
41,890	,,	4	4	Do. 4 p.c. Red. Deb. ...	97—101	...
2,167,410	Feb. 21	6	6	Liverpool 5 p.c. Ord.... ...	124—125	...
245,500	Dec. 13	5	5	Do. 5 p.c. Red. Pref. ...	99—104	...
306,083	Jan. 17	4	4	Do. 4 p.c. Deb. ...	100—102	...
106,280	Feb. 7	10	10	Preston 'A' 10 p.c.	202—212	...
188,219	,,	7	7	Do. 'B' 7 p.c.	144—154	...

NEWCASTLE EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, Apl. 29.	Rise or Fall on Week.
122,577	Feb. 21	8	8	Blyth 5 p.c. Ord.	163½—164½	...
732,000	Feb. 21	5	5	Hartlepool G. & W. Cn. & New	110—112	...
2,061,315	Feb. 7	5	5⅝	Newcastle & Gateshead Con.	23/3—23/9a	+–/6
682,856	,,	4	4	Do. 4 p.c. Pref. ...	99½—100½	+½
776,706	Jan. 3	3½	3½	Do. 3½ p.c. Deb. ...	91½—92½	...
277,285	Nov. 1	5	5	Do. 5 p.c. Deb. '43..,	103—105	...
332,351	Feb. 7	6	6	Sunderland 6 p.c. max. ...	137—139	...

NOTTINGHAM EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, Apl. 29.	Rise or Fall on Week.
542,270	Feb. 21	6	9	Derby Con.	135—145	...
55,000	Dec. 13	4	4	Do. 4 p.c. Deb.	100—105	...
20,000	Dec. 13	5	5	Long Eaton 5 p.c. Pref. ...	10—12	...
80,000	,,	5	5	Do. 5 p.c. Deb. ...	105—110	...

SHEFFIELD EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, Apl. 29.	Rise or Fall on Week.
10,000	Feb. 21	10	10	Great Grimsby 'A' Ord. ...	205—215	...
6,500	,,	10	10	Do. 'B' Ord. ...	205—215	...
79,000	,,	10	10	Do. 'C' Ord. ...	195—205	...
1,806,339	Feb. 21	6½	6½	Sheffield Cons.	139—142	...
95,000	Jan. 3	4	4	Do. 4 p.c. Deb.	102—104	...

a The quotation is per £1 of Stock. b Actual. * Ex div.

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